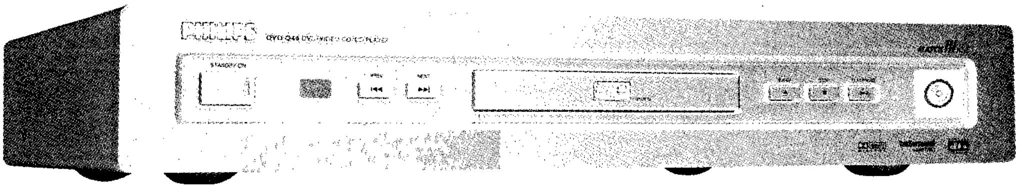
DVD-Video Player

DVDQ40-50

DVDQ40 /001/021/051
DVDQ50 /001/021/051

Service
Service
Service



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Service Manual

CLASS 1
LASER PRODUCT

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PHILIPS

1. Technical Specifications

Specifications

PLAYBACK SYSTEM

DVD Video
Video CD & SVCD
CD (CD-Recordable and CD-Rewritable)
DVD+RW
MP3

OPTICAL READOUT SYSTEM

Lasertype	Semiconductor AlGaAs
Numerical Aperture	0.60 (DVD) 0.45 (VCD/CD)
Wavelength	650 nm (DVD) 780 nm (VCD/CD)

DVD DISC FORMAT

Medium	Optical Disc	
Diameter	12cm (8cm)	
Playing time	One layer	2.15 h*
(12cm)	Dual layer	4 h*
	Two side Single layer	4.30 h*
	Two side Dual layer	8 h*

VIDEO FORMAT

DA Converter	10 bits (S-Video & CVBS) 10 bits, 54 MHz (Pr/Cr Pb/Cb Y Component Video Out)
Signal handling	Components
Digital Compression	MPEG2 for DVD, MPEG1 for VCD

TV STANDARD	**(PAL/50Hz)**	**(NTSC/60Hz)**
Number of lines	625	525
Playback	Multistandard	(PAL/NTSC)

DVD

Horizontal Resolution	720 pixels	720 pixels
Vertical Resolution	576 lines	480 lines

VCD

Horizontal Resolution	352 pixels	352 pixels
Vertical Resolution	288 lines	240 lines

VIDEO PERFORMANCE

Video output	1 Vpp into 75 ohm
S-Video output	Y: 1 Vpp into 75 ohm C: 0.3 Vpp into 75 ohm
Component video output	Y: 1 Vpp into 75 ohm Pb/Cb Pr/Cr: 0.7 Vpp into 75 ohm
RGB (SCART) output	0.7 Vpp into 75 ohm
Black Level Shift	On/Off
Video Shift	Left/Right

AUDIO FORMAT

Digital	MPEG	Compressed Digital
	DTS/Dolby Digital	
	PCM	16, 20, 24 bits fs, 44.1, 48, 96 kHz
MPEG MP3		MPEG Audio L3

Analog Sound Stereo
Dolby Pro Logic downmix from Dolby Digital multi-channel sound
Full decoding of Dolby Digital and DTS multi-channel surround sound
3D Sound (TruSurround) for virtual 5.1 channel sound on 2 speakers

AUDIO PERFORMANCE

DA Converter	24 bits	
DVD	fs 96 kHz	4 Hz - 44 kHz
	fs 48 kHz	4 Hz - 22 kHz
Video CD	fs 44.1 kHz	4 Hz - 20 kHz
CD	fs 44.1 kHz	4 Hz - 20 kHz
Signal-Noise (1kHz)		110 dB
Dynamic Range (1kHz)		100 dB
Crosstalk (1kHz)		110 dB
Distortion and Noise (1kHz)		98 dB

Specifications subject to change without prior notice

CONNECTIONS

SCART	Euroconnector
Y Output	Cinch (green)
Pb/Cb Output	Cinch (blue)
Pr/Cr Output	Cinch (red)
S-Video Output	Mini DIN, 4 pins
Video Output	Cinch (yellow)
Audio L+R output	Cinch (white/red)
6 Channel Analog Output	
Audio Front Left/Right	Cinch (white/red)
Audio Surround Left/Right	Cinch (white/red)
Audio Centre	Cinch (blue)
Audio Subwoofer	Cinch (black)
Digital Output	1 coaxial, 1 optical IEC958 for CDDA / LPCM IEC1937 for MPEG1/2, Dolby Digital and DTS

CABINET

Dimensions (w x h x d)	435 x 72.5 x 291 mm
Weight	Approximately 3 Kg

GENERAL FUNCTIONALITY

Stop / Play / Pause
Fast Forward / Backward
Time Search
Step Forward / Backward
Slow Motion
Title / Chapter / Track Select
Skip Next / Previous
Repeat (Chapter / Title / All) or (Track / All)
A-B Repeat
Shuffle
Scan
New enhanced user graphical interface
Perfect Still with digital multi-tap filter
Zoom (x1.33, x2, x4) with picture enhancement
Smart Picture for convenient personal Colour setting
Digital Crystal Clear
NTSC/PAL Conversion
Screen Saver (Dim 75% after 15 minutes)
5.1 channels user defines speaker settings
3D Sound (TruSurround)
Virtual Jog Shuttle
Audio and video bit rate indicator
Display Dim
Beeper
Wake up Timer
PCM Output

DVD FUNCTIONALITY

Multi-angle Selection
Audio Selection (one out of maximum eight languages)
Subtitles Selection (one out of maximum 32 languages)
Aspect Ratio conversion (16:9, 4:3 Letterbox, 4:3 Pan Scan)
Parental Control and Child Lock
Disc Menu support (Title Menu and Access Control)
Resume (5 discs) after stop / standby
Programming Titles/chapters with Favorite Track Selection

VIDEO CD FUNCTIONALITY

Playback Control for VCD 2.0 discs
Child Lock
Resume (5 discs) after stop / standby
Programming Tracks with Favorite Track Selection

AUDIO CD FUNCTIONALITY

Time Display (Total / Track / Remaining Track Time)
Full audio functionality with remote control
Programming with Favorite Track Selection

MP3 FUNCTIONALITY

Time Display (Track)
Album and Track Selection
Repeat (Disc / Album / Track)

* *typical playing time for movie with 2 spoken languages and 3 subtitle languages*

2. Warnings And Laser Safety Instructions

GB **WARNING**

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD).
Careless handling during repair can reduce life drastically.
When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance.
Keep components and tools also at this potential.

ESD

NL **WAARSCHUWING**

Alle IC's en vele andere halfgeleiders zijn gevoelig voor elektrostatische ontladingen (ESD).
Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen.
Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.
Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

F **ATTENTION**

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD).
Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise a leur manipulation.
Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfiler le bracelet serti d'une résistance de sécurité.
Veiller a ce que les composants ainsi que les outils que l'on utilise soient également a ce potentiel.

D **WARNUNG**

Alle IC und viele andere Halbleiter sind empfindlich gegen elektrostatische Entladungen (ESD).
Unsorgfältige Behandlung bei der Reparatur kann die Lebensdauer drastisch vermindern.
Sorgen sie dafür, das Sie im Reparaturfall über ein Pulsarmband mit Widerstand mit dem Massepotential des Gerätes verbunden sind.
Halten Sie Bauteile und Hilfsmittel ebenfalls auf diesem Potential.

I **AVVERTIMENTO**

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).
La loro longevita potrebbe essere fortemente ridatta in caso di non osservazione della piu grande cauzione alla loro manipolazione.
Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.
Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

GB

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

NL

Veiligheidsbepalingen vereisen, dat het apparaat in zijn oorspronkelijke toestand wordt terug gebracht en dat onderdelen, identiek aan de gespecifieerde worden toegepast.

D

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten.
Der Originalzustand des Gerats darf nicht verandert werden.
Fur Reparaturen sind Original-Ersatzteile zu verwenden.

I

Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati pezzi di ricambiago identici a quelli specificati.

F

Les normes de sécurité exigent que l'appareil soit remis a l'état d'origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.

SHOCK, FIRE HAZARD SERVICE TEST:

CAUTION: After servicing this appliance and prior to returning to customer, measure the resistance between either primary AC cord connector pins (with unit NOT connected to AC mains and its Power switch ON), and the face or Front Panel of product and controls and chassis bottom,
Any resistance measurement less than 1 Megohms should cause unit to be repaired or corrected before AC power is applied, and verified before return to user/customer.
Ref.UL Standard NO.1492.

NOTE ON SAFETY:

Symbol ⚠ : Fire or electrical shock hazard. Only original parts should be used to replace any part with symbol ⚠
Any other component substitution(other than original type), may increase risk or fire or electrical shock hazard.

"Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agrées, seuls habilités à réparer votre appareil en panne."

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LASER SAFETY

This unit employs a laser. Only a qualified service person should remove the cover or attempt to service this device, due to possible eye injury.

LASER DEVICE UNIT

Type:	SemiconductorlaserGaAlAs
Wave length:	650 nm (DVD) 780 nm (VCD/CD)
Output Power:	7 mW (DVD) 10 mW (VCD/CD)
Beam divergence:	60 degree

CLASS 1
LASER PRODUCT

USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURE OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

AVOID DIRECT EXPOSURE TO BEAM

WARNING

The use of optical instruments with this product will increase eye hazard.
Repair handling should take place as much as possible with a disc loaded inside the player

WARNING LOCATION: INSIDE ON LASER COVERSHIELD

CAUTION VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN AVOID EXPOSURE TO BEAM
ADVARSEL SYNLIG OG USYNLIG LASERSTRÅLING VED ÅBNING UNDGÅ UDSÆTTELSE FOR STRÅLING
ADVARSEL SYNLIG OG USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES UNNGÅ EKSPONERING FOR STRÅLEN
VARNING SYNLIG OCH OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD BETRAKTA EJ STRÅLEN
VARO! AVATTAESSA OLET ALTTIINA NÄKYVÄLLE JA NÄKYMÄTTÖMÄLLE LASER SÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN
VORSICHT SICHTBARE UND UNSICHTBARE LASERSTRAHLUNG WENN ABDECKUNG GEÖFFNET NICHT DEM STRAHL AUSSETSEN
DANGER VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN AVOID DIRECT EXPOSURE TO BEAM
ATTENTION RAYONNEMENT LASER VISIBLE ET INVISIBLE EN CAS D'OUVERTURE EXPOSITION DANGEREUSE AU FAISCEAU

Warning for powersupply on position 1005

The primary side of the powersupply including the heatsink carries live mains voltage when the player is connected to the mains even when the player is swiched off !
This primary area is not shielded so it is possible to touch copper tracks and/or components when servicing the player. Service personnel have to take precautions to prevent touching this area or components in this area .
The primary side of the powersupply has been indicated with a lightning stroke and a stripe-marked printed on the printed wiring board

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2.1 Notes

2.1.1 DVD-Module

For repair of the DVD-module SD3, the service manual 3122 785 11010 has to be used.

2.1.2 ComPair

For assistance with the repair process of the monoboard an electronic Fault finding guidance has been developed , this program is called ComPair.
This ComPair program is available on CDROM.
The Version of the CDROM for repair of the monoboard is V1.3 or higher and can be ordered with codenumber : 4822 727 21637.
This is an update CDROM , so when the COMPAIR CDROM is used for the first time , one has to install the ComPair ENGINE CDROM V1.2 first.
The V1.2 CDROM can be ordered with codenumber 4822 727 634 and has to registered after installation , the procedure for registration is explained in the help file of the program and in the booklet from the CDROM.
The cable to connect the monoboard with a PC can be ordered with codenumber 3122 785 90017.
All the hardware and software requirements of the systems necessary for working with ComPair is described on the CDROM.

Introduction

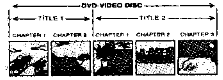
Philips DVD Video

Introduction

Your Philips DVD Video player will play digital video discs conforming to the universal DVD Video standard. The unique features on DVD Video, such as selection of sound track, subtitle languages and different camera angles (again depending on the disc), are all supported.
In addition to DVD Video discs, you will be able to play all Video CDs and Audio CDs.

DVD Video

You will recognize DVD Video discs by the logo shown. Depending on the material on the disc (a movie, video clips, a drama series, etc.) the disc may have one or more Titles.



Video CD

You will recognize Video CDs by the logo shown.

Super Video CD (SVCD)

SVCDs are based on the SuperVCD IO Standard, referring to the Standard of Electronics Industry of the People's Republic of China.

Audio CD

Audio CDs contain music tracks only.
You will recognize Audio CDs by the logo shown.

MP3 (MPEG Audio Layer 3)

This player supports the MP3 format which contains compressed music tracks.

Note:
- *Only the first session of multisession discs is supported.*

Unpacking

First check and identify the contents of your DVD Video player package.
You should have the following items.
- DVD Video player
- AC power cord
- Remote Control with batteries
- Audio cable
- CVBS Video cable
- SCART cable
- Instructions for use

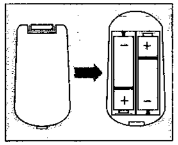
If any item is damaged or missing, contact your retailer or Philips.
Keep the packaging material for future transportation.

Remote Control Battery

Installation

- Insert batteries as indicated inside the battery compartment.

Caution: Do not mix old and new batteries. Never mix different types of batteries (standard, alkaline, etc.).



Environmental Information

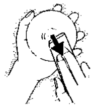
- Your system consists of materials that can be recycled and reused if disassembled by a specialized company. Please observe the local regulations regarding the disposal of packaging materials, exhausted batteries and old equipment.

Safety Information

- Do not expose the system to excessive moisture, rain, sand, or heat sources.
- Place the player on a firm, flat surface.
- Keep the player away from domestic heating equipment and direct sunlight.
- In a cabinet, allow about 2.5 cm (1 inch) of free space all around the player for adequate ventilation.
- If the DVD Video player cannot read CDs/DVDs correctly, use a commonly available cleaning CD/DVD to clean the lens before taking the DVD Video player to be repaired. Other cleaning methods may destroy the lens. Always keep the tray closed to avoid dust on the lens.
- The lens may cloud over when the DVD Video player is suddenly moved from cold to warm surroundings. Playing a CD/DVD is not possible then. Leave the power on for about one hour with no disc in the unit until normal playback is possible.

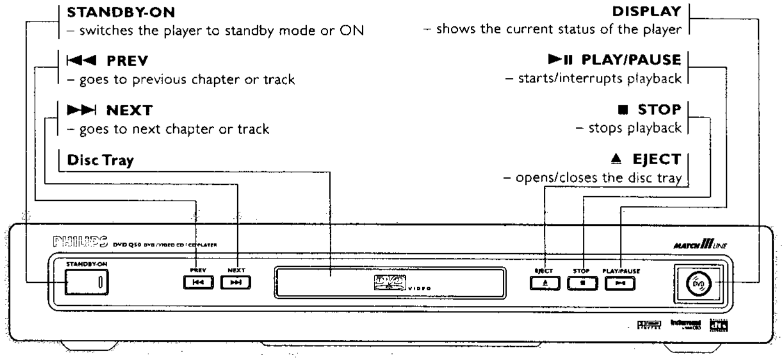
Cleaning Discs

- When a disc becomes dirty, clean it with a cleaning cloth. Wipe the disc from the center out, in a straight line.
- Do not use solvents such as benzine, thinner, commercially available cleaners, or anti-static spray intended for analog discs.



Functional Overview

Front and Rear Panels



STANDBY-ON
– switches the player to standby mode or ON

⏮ PREV
– goes to previous chapter or track

⏭ NEXT
– goes to next chapter or track

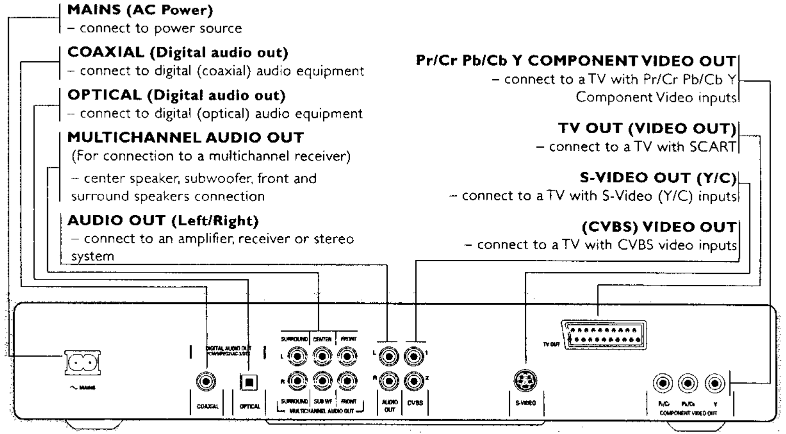
Disc Tray

DISPLAY
– shows the current status of the player

▶II PLAY/PAUSE
– starts/interrupts playback

■ STOP
– stops playback

▲ EJECT
– opens/closes the disc tray



MAINS (AC Power)
– connect to power source

COAXIAL (Digital audio out)
– connect to digital (coaxial) audio equipment

OPTICAL (Digital audio out)
– connect to digital (optical) audio equipment

MULTICHANNEL AUDIO OUT
(For connection to a multichannel receiver)
– center speaker, subwoofer, front and surround speakers connection

AUDIO OUT (Left/Right)
– connect to an amplifier, receiver or stereo system

Pr/Cr Pb/Cb Y COMPONENT VIDEO OUT
– connect to a TV with Pr/Cr Pb/Cb Y Component Video inputs

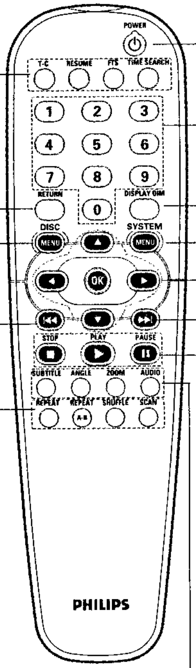
TV OUT (VIDEO OUT)
– connect to a TV with SCART

S-VIDEO OUT (Y/C)
– connect to a TV with S-Video (Y/C) inputs

(CVBS) VIDEO OUT
– connect to a TV with CVBS video inputs

Caution: Do not touch the inner pins of the jacks on the rear panel. Electrostatic discharge may cause permanent damage to the unit.

Remote Control



T-C
– select title/chapter

RESUME
– to continue playback from STOP/PAUSE mode

FTS
– activate/deactivate Favourite Track Selection

TIME SEARCH
– starts playback at any chosen time on a disc

RETURN
– go back to previous menu

DISC MENU
– access menu of a DVD disc

⏮
– search backward* / go to a previous chapter or track

REPEAT
– repeat chapter, track, title, disc

REPEAT (A-B)
– repeat a specific segment

SHUFFLE
– play tracks in random order

SCAN
– play the first 10 seconds of each track/chapter within a disc

POWER ⏻
– switches DVD Video player ON or to standby mode

0-9 numerical key pad
– select numbered items in a menu

DIM
– to select 3 different brightnesses for the display

DISPLAY*
– display bit rate indicator during playback

SYSTEM MENU
– access or remove the player's menu

◀ ▶ ▲ ▼
– (left/right/up/down) select an item in the menu

OK
– acknowledge menu selection

⏭
– search forward* / go to the next chapter or track

STOP (■)
– stops playback

PLAY (▶)
– starts playback

PAUSE (II)
– pause playback temporarily / frame-by-frame playback

SUBTITLE
– select a subtitle language

ANGLE
– select a DVD camera angle

ZOOM
– enlarge video image

AUDIO
– select an audio language

** Press and hold key for about two seconds*

Preparation

General Notes

- Depending on your TV and other equipment you wish to connect, there are various ways you could connect the player. Use only one of the connections described below.
- Please refer to the manuals of your TV, VCR, Stereo System or other devices as necessary to make the best connections.
- For better sound reproduction, connect the player's audio out jacks to the audio in jacks of your amplifier, receiver, stereo or audio/video equipment. See 'Connecting to Optional Equipment'.

Caution:
– Make sure the DVD player is connected directly to the TV. Set the TV to the correct video input channel.
– Do not connect the player's audio out jack to the phono in jack of your audio system.
– Do not connect your DVD player to the TV via your VCR. The DVD image could be distorted by the copy protection system.
– After all connections are made, connect the AC power cord to an AC power outlet in your home.

Connecting to a TV

- Make one of the following connections, depending on the capabilities of your existing equipment.

SCART connection

1 Connect the SCART to the corresponding connector on the TV using the SCART cable supplied ***(Z)***.

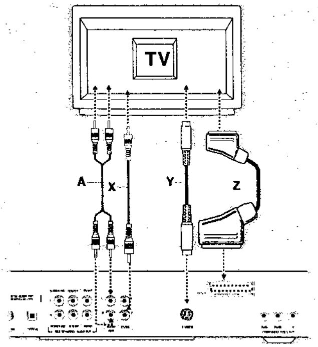
If your TV is not equipped with a SCART you can select one of the following alternative connections:

S-Video (Y/C) connection

1 Connect the Y/C S-VIDEO OUT jack on the DVD player to the S-Video in jack on the TV using an optional S-Video cable ***(Y)***.
2 Connect the Left and Right AUDIO OUT jacks of the DVD player to the audio left/right in jacks on the TV ***(A)***.

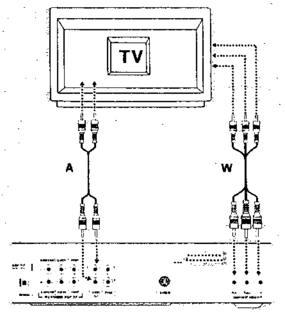
CVBS connection

1 Connect the (CVBS) VIDEO OUT jack on the DVD player to the video in jack on the TV using the video cable supplied ***(X)***.
2 Connect the Left and Right AUDIO OUT jacks of the DVD player to the audio left/right in jacks on the TV ***(A)***.



Component Video (Pr/Cr Pb/Cb Y) connection

1 Connect the Pr/Cr Pb/Cb Y VIDEO OUT jacks on the DVD player to the corresponding in jacks on the TV using an optional Pr/Cr Pb/Cb Y cable ***(W)***.
2 Connect the Left and Right AUDIO OUT jacks of the DVD player to the audio left/right in jacks on the TV ***(A)***.



Connecting to Optional Equipment

Connecting to an amplifier equipped with two channel analog stereo or Dolby Surround

1 Connect the Left and Right audio out jacks of the DVD player to the audio left and right in jacks on your amplifier, receiver or stereo system, using the optional audio cable **(A)**.

Note:

– You cannot use the MP3 function with the Digital Out connectors.

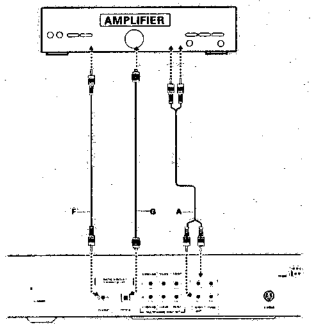
Connecting to an amplifier equipped with two channel digital stereo (PCM) or to an Audio/Video receiver equipped with a multi-channel decoder (Dolby Digital™, MPEG 2 and DTS)

1 Connect the player's digital audio out jack (optical **G** or coaxial **F**) to the corresponding in jack on your amplifier. Use an optional digital (optical **G** or coaxial **F**) audio cable.

2 You will need to activate the player's digital output (see 'Personal Preferences').

Digital Multi-channel sound

The digital multi-channel connection provides the best sound quality. For this you need a multi-channel A/V receiver that supports one or more of the audio formats supported by your DVD player (MPEG 2, Dolby Digital™ and DTS). Check the receiver manual and the logos on the front of the receiver.



Warning:
Due to DTS Licencing agreement, the digital output will also be in DTS digital out when DTS audio stream is selected.

Note:

– If the audio format of the digital output does not match the capabilities of your receiver, the receiver will produce a strong, distorted sound or no sound at all.

– Six Channel Digital Surround Sound via digital connection can only be obtained if your receiver has a Digital Multi-channel decoder.

– To see the selected audio format of the current DVD in the Status Window, press SYSTEM MENU or Audio button.

Analog connection to a multi-channel A/V receiver with 6 CH connectors (Dolby Digital & DTS)

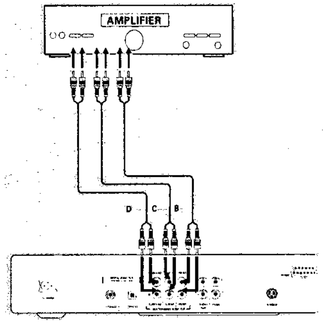
This DVD player contains a multi-channel decoder. This enables playback of DVDs recorded in Multi-channel Surround without the need for an optional decoder.

1 Connect the audio out jacks for Center speaker and Subwoofer connection **(C)** to the corresponding in jacks on your receiver.

2 Connect the audio Left and Right out jacks for Front speaker connection **(B)** to the corresponding in jack sockets on your receiver.

3 Connect the audio Left and Right out jacks for Surround speaker connection **(D)** to the corresponding in jacks on your receiver.

4 Make the appropriate Sound settings for Analog Output and Speaker Settings in the Personal Preferences menu.



NTSC/PAL Settings

You can switch the NTSC/PAL setting of the DVD player to match the video signal of your TV. This setting only affects the television's on-screen display that shows the stop and setup modes. You may select either NTSC or PAL. To change the DVD player setting to PAL or NTSC, follow the steps below.

1 Unplug the DVD player from the mains.

2 Press and hold ■ and ▶▶I, on the front of the DVD player. While holding ■ and ▶▶I, plug in the mains.

3 After PAL or NTSC appears on the display of the DVD player, release ■ and ▶▶I at the same time. The PAL or NTSC indicator that appears on the display indicates the current setting.

4 To change the setting, press ▶▶I within three seconds. The new setting (PAL or NTSC) will appear on the display.

NTSC/PAL Conversion

This player is equipped with a NTSC/PAL conversion feature to convert the video output of the disc to match your TV system. The conversions supported are as below:

Disc		Output format		
		Selected mode		
Type	Format	NTSC	PAL	AUTO
DVD	NTSC	NTSC	PAL	NTSC
	PAL	Not Supported	PAL	PAL
VCD	NTSC	NTSC	PAL	NTSC
	PAL	NTSC	PAL	PAL

1 In the Preference Menu, select **TV System**.

2 Press ▲ or ▼ to select PAL, NTSC or AUTO.

Notes:

– AUTO can only be selected when using a TV that has both the NTSC and PAL systems.

– This is applicable for CVBS output on cinch and SCART only

– Slight picture distortions may occur due to this conversion. This is normal. Thus, the AUTO format is most suitable for the best picture quality.

General Explanation

About this manual

This manual gives the basic instructions for operating the DVD player. Some DVDs require specific operation or allow only limited operation during playback. When this occurs, the symbol X appears on the TV screen, indicating that the operation is not permitted by the player or the disc.

Remote control operation

- Unless stated, all operations can be performed by the remote control. Always point the remote control directly at the player, making sure there are no obstructions between the remote and the player.
  Corresponding keys on the front panel of the player can also be used.

Menu bar operation

- A number of operations can be done with the menu bar on the screen. The menu bar icons can be accessed by pressing the cursor keys on the remote control.
- Pressing SYSTEM MENU while the menu bar is displayed will clear the menu bar from the screen.
- The selected item will be highlighted, and the appropriate cursor keys to operate it will be displayed below the icon.
- The symbols < or > indicate more items are available at the left/right of the menu bar. Press ◀ or ▶ to select these items.

Initial Setup (Virgin Mode)

General

In 'Initial Setup' you may have to set your preferences for some of the player's features. *(not applicable for all models)*

Operation

After switching on the player for the very first time, the 'Initial Setup Screen' will appear.
The menu for the first item to be set is displayed and the first option is highlighted.

- Use the ▼ ▲ keys to go through the options in the menu. The icon of the selected option will be highlighted.
- Use OK to confirm your selection and to go to the next menu.

Note:
– *Preferences have to be set in the order of which the item menus will appear on the screen.*
– *The 'Initial Setup' screen will only disappear after the settings for the last item have been confirmed.*
– *If any keys other than ▼ ▲ or OK are pressed, ✕ will appear on the screen.*
– *If the player is switched off while setting personal preferences, all preferences have to be set again after switching the player on again.*

The following items may have to be set in Initial Setup:

Menu language

You can choose from different languages. The On Screen Menus will be displayed in the language available on the player.

Audio language

You can choose from different languages. If available on the disc, the player will play the audio in the selected language. If the selected language is not available, speech will revert to the first spoken language on the disc.

Subtitle language

You can choose from different subtitle languages. If available on the disc, subtitles will be in the language choosen. If the selected language is not available, subtitles will revert to the first subtitle language on the disc.

TV Shape

If you have a wide screen (16:9) TV, select 16:9.
If you have a regular (4:3) TV, select 4:3.
If you have a 4:3 TV, you can also select between: Letterbox for a 'wide-screen' picture with black bars top and bottom, or Pan Scan, for a full-height picture with the sides trimmed. If a disc supports the format, the picture will be shown accordingly.

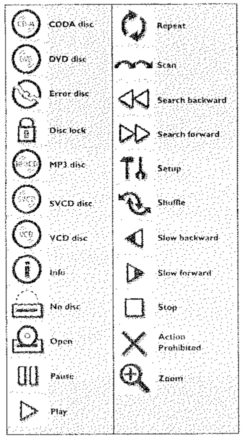
Country

Select your country. This is used as input for the 'Parental Control' feature (see 'Access Control').

Note:
– *All these items may have to be set during 'Initial Setup'. After that, they can always be changed in the Personal Preferences Menu.*

Display on Front Panel

Various icons will appear on the front panel display depending on the current status of the player.



Menu Bar on TV Screen

As there are multiple menu bars, the items on the menu bar are arranged according to usage and availability of direct access keys. Pressing the SYSTEM MENU keys repeatedly will toggle through menu bar 1, menu bar 2, menu bar 3 and OFF.

Menu bar 1
Personal Preferences
Subtitle Language
Audio Language
Colour Setting (Smart Picture)
Sound

Menu bar 2
Step by step playback
Slow motion
Fast motion
Angle
Zoom

Menu bar 3
Title
Chapter
Time Search
Favorite Track Selection (FTS)
Wake up Timer

Temporary Feedback Field Icons

Scan
Repeat All
Repeat Title
Repeat Track
Repeat Chapter
Shuffle
Shuffle Repeat
Repeat A to end
Repeat A-B
Angle
Child Lock On
Child Safe
Resume
Action prohibited

Personal Preferences

You can set your own personal preferences on the player.

General operation:

1 Press SYSTEM MENU on the remote control.
2 Select ▨ in the menu bar.
→ The Personal Preferences menu appears.
3 Use the ◀ ▶ ▲ ▼ keys to toggle through the menus, submenus and submenu options.
→ When a menu item is selected, the cursor keys (on the remote control) to operate the item are displayed next to the item.
4 Press OK to confirm and return to the main menu.
The following items can be adapted:

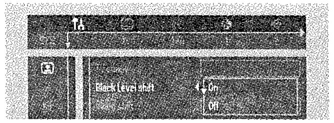
Picture

– TV Shape

If you have a wide screen (16:9) TV, select 16:9.
If you have a regular (4:3) TV, select 4:3.
If you have a 4:3 TV, you can also select between: Letterbox for a 'wide-screen' picture with black bars at the top and bottom of the screen, or Pan Scan, for a full-height picture with the sides trimmed. If a disc supports the format, the picture will be shown accordingly.

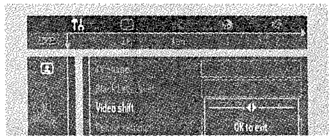
– Black level shift (NTSC users only)

Select ON for adapting the Colour dynamics to obtain richer contrasts.



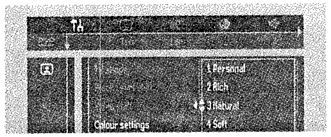
– Video shift

The factory centers the video on your TV screen. Use this setting to personalize the position of the picture on your TV by moving it to the left or right.



– Colour settings

You can select one of five predefined sets of colour settings and one set (Personal) which you can define yourself.



– Personal colour

Allows you to fine-tune the selected colour settings saturation, brightness and contrast.

– DCC (on Pr/Cr Pb/Cb Y Component Video Out only)

Digital Crystal Clear (DCC) allows you to fine-tune the following parameters on the progressive scan component output.

- **Gamma** - allows you to adjust the intensity of the picture non-linearly. A positive value will allows you to bring out low level detail on dark scene while a negative value will emphasis on contrast.
- **Sharpness** - allows you to adjust sharpness of the picture.
- **Chroma Delay** - is where the Chroma (color) and luma (brightness) signal is out of synchronize. This allows you to adjust the advance delay of the chroma signal to yield a perfectly clear picture.

– TV System

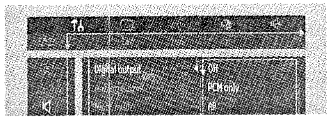
Allows you to select between PAL, NTSC and AUTO mode depending on your TV.

Note:
– *Refer to "NTSC/PAL Conversion".*

Sound

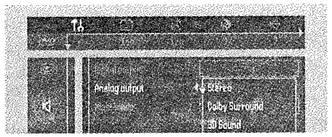
– Digital output

Factory setting: ALL. This means coaxial and optical output is on. If you are not connecting to equipment with a digital input, change the setting to OFF.
If your equipment doesn't include a digital multi-channel decoder, set the digital output to PCM only (Pulse Code Modulation).



– Analog output

Select Stereo, Dolby Surround, 3D Sound (TruSurround) or multichannel output to match your system's playback capability.

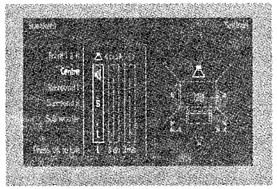


– Night Mode

Optimizes the dynamics of the sound for low volume playback.

– Speaker settings

Allows you to select speaker settings, volume balance and delay time and to test the speaker settings.
Speaker settings are only active on the Analog Multi-Channel Output. (See appendix)



– PCM Output

Allows to select PCM digital output between 48kHz and 96kHz. When 48kHz has been selected, 96kHz (if available on disc) PCM data stream will be converted to 48kHz.

– Karaoke vocal

Put this setting to ON only when a multi-channel karaoke DVD is being played. The karaoke channels on the disc will then be mixed into a normal stereo sound.

Language

Select the required Menu, Audio and Subtitle language. Audio language and Subtitle language can also be adapted using the Menu bar.

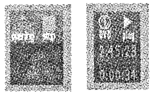
Features

– Access Control

Access Control contains the following features:
Child Lock - When Child Lock is set to ON, a 4-digit code must be entered in order to play discs.
Parental control - Allows the conditional viewing of DVDs containing Parental Control information (see 'Access Control').

– Status Window

Displays the current status of the player and appears with the menu bar. When disc playback is stopped, it is displayed with the 'Temporary Feedback Field' in the default screen. See 'On-Screen Display' information.
The factory setting is ON. Select OFF to suppress display of the Status Window.



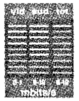
– DIM

You can select the desired brightness for the front panel display.

- Normal brightness will appears on the display when you press **DISPLAY DIM** on the remote control.
- Medium brightness will appears on the display when you press **DISPLAY DIM** a second time on the remote control.
- Low brightness will appears on the display when you press **DISPLAY DIM** a third time on the remote control.
- Brightness will turn OFF when you press **DISPLAY DIM** a fourth time on the remote control.

– Bit Rate Indicator

Press and hold **DISPLAY DIM** key for 2 seconds. When activated, the bit rate for video and audio, as well as the total bit rate is displayed. This is only applicable during playback of DVD and SVCD discs.



– Help text

When set to ON, help text describes the icons selected. Select OFF if you no longer require the help text.

– Low Power Standby

If this is set to ON, the player will go in low-power standby when the standby button is pressed (front panel or remote control).

– Beeper

The beeper can be set to ON or OFF.

– PBC (Playback Control)

The Playback Control can be set to ON or OFF.

– Smart Power OFF

Puts the set to standby after a predefined time. This can be set to ON or OFF.

Operation

Loading Discs

1 Press EJECT on the front of the player to open the disc tray.
2 Load your chosen disc in the tray, label side up.
3 Press EJECT again to close the tray.
→ READ appears in the status window and on the player display, and playback starts automatically.

Note:
– *If 'Child Lock' is set to ON and the disc inserted is not authorized, the 4-digit code must be entered and/or the disc must be authorized (see 'Access Control').*

Playing a DVD Video and Video CD

Playing a disc

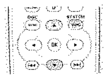
- After inserting the disc and closing the tray, playback starts automatically. The status window of the player display shows the type of disc loaded.
- The disc may invite you to select an item from a menu. If the selections are numbered, press the appropriate numerical key; if not, use the ▼ ▲ ◀ ▶ keys to highlight your selection, then press OK.
- The number of the current title and chapter are displayed.
- Playback may stop at the end of the Title and you may return to the DVD disc menu. To go to the next title, press ▶.
- To stop playback, press ■.
→ The default screen will appear, giving information about the current status.
- You can resume playback from the point at which you stopped playback. Press ▶; when you see the Resume icon |▶ on the screen, press ▶ again.
→ The RESUME feature applies not only to the disc in the player, but also to the last four discs you have played. Simply reload the disc and press **RESUME** on the remote control. Or, press ▶ when you see the Resume icon |▶ on the screen, then press ▶ again.

Note:
– *DVDs may have a region code. Your player will not play discs that have a region code different from the region code of your player.*

General Features

Note:
– *Unless stated, all operations described are based on remote control use. Some operations can be carried out using the menu bar on the screen.*

Moving to another title/ chapter



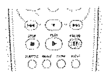
When a disc has more than one title or chapter, you can move to another title/chapter as follows:

- Press **SYSTEM MENU**, then select ▦ or ▦ in the menu bar.
- Press ▲ or ▼ to select a title/chapter.

Slow Motion

- Select ▦ (SLOW MOTION) in the menu bar.
- Use the ▼ keys to enter the SLOW MOTION menu.
→ Playback will pause.
- Use the cursor keys ◀ ▶ to select the required speed: -1, -1/2, -1/4 or -1/8 (backward), or +1/8, +1/4, +1/2 or +1 (forward).
- Select 1 to play the disc at normal speed again.
- If II is pressed, the speed will be set to zero (PAUSE).
- To exit slow motion mode, press ▶ or ▲.

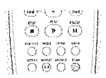
Still Picture and Frame-by-frame playback



- Select ▦ (**STEP**) in the menu bar.
- Use the ▼ key to enter the step by step menu.
→ Playback will pause.
- Use the cursor keys ◀ ▶ to select the previous or next picture frame.
- To exit step by step playback, press ▶ or ▲.

You can also step forward by pressing II repeatedly on the remote control.

Scan



Scanning plays the first 10 seconds of each chapter/track on the disc.

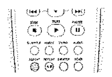
- Press **SCAN**.
- To continue playback at your chosen chapter/track, press **SCAN** again or press ▶.

Search

- Select ▦ (FAST MOTION) in the menu bar.
- Use the ▼ keys to enter the FAST MOTION menu.
- Use the ◀ ▶ keys to select the required speed: -32, -8 or -4 (backward), or +4, +8, +32 (forward).
- Select 1 to play the disc at normal speed again.
- To exit FAST MOTION mode, press ▶ or ▲.

To search forward or backward through different speeds, you can also hold down |◀◀ or ▶▶|.

Repeat



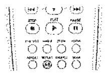
DVD Video Discs
Repeat chapter/title/disc

- To repeat the current chapter, press REPEAT.
→ ↻ appears on the DVD player display.
- To repeat the current title, press REPEAT a second time.
→ ↻ appears on the DVD player display.
- To repeat the entire disc, press REPEAT a third time.
→ ↻ appears on the DVD player display.
- To exit Repeat mode, press REPEAT a fourth time.

Video CDs
Repeat track/disc

- To repeat the current track, press REPEAT.
→ ↻ appears on the DVD player display.
- To repeat the entire disc, press REPEAT a second time.
→ ↻ appears on the DVD player display.
- To exit Repeat mode, press REPEAT a third time.

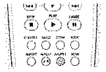
Repeat A-B



To repeat a specific portion of a title:

- Press REPEAT A-B at your chosen starting point.
→ ↻ appears briefly on the DVD player display.
- Press REPEAT A-B again at your chosen end point.
→ ↻ appears briefly on the DVD player display, and the repeat sequence begins.
- To cancel the sequence and continue regular playback, press REPEAT A-B.

Shuffle



DVD Video discs

This shuffles the playing order of chapters within a title, if the title has more than one chapter.

- Press SHUFFLE during playback.
→ **SHUFFLE** appears on the TV screen for about two seconds.
- To return to normal playback, press SHUFFLE again.

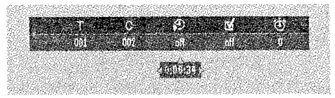
Video CDs

- Press SHUFFLE during playback.
→ **SHUFFLE** appears on the TV screen for about two seconds.
- To return to normal playback, press SHUFFLE again.

Time search

The Time Search function allows you to start playing at any chosen time on the disc.

1 Select ▦ (TIME SEARCH) in the menu bar
2 Press ▼.
→ Playback will pause.
→ A time edit box appears on the screen, showing the elapsed playing time of the current disc.
3 Use the numeric keys to enter the required start time. Enter hours, minutes and seconds from left to right in the box.
→ Each time an item has been entered, the next item will be highlighted.
4 Press OK to confirm the start time.
→ The time edit box will disappear and playback starts from the selected time on the disc.

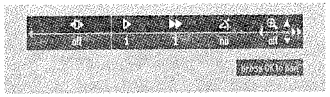


5 Press SYSTEM MENU to remove the menu bar.

Zoom

The Zoom function allows you to enlarge the video image and to pan through the enlarged image.

- Select (**ZOOM**).
- Press ▲/▼ to activate the **ZOOM** function and select the required zoom factor: 1.33 or 2 or 4.
  → Playback will pause.
  → The selected zoom factor appears below the Zoom icon in the menu bar, and '*Press OK to pan*' appears below the menu bar.
  → The picture will change accordingly.
- Press OK to confirm the selection.
  → The panning icons appear on the screen.
- Use the ◀ ▶ ▲ ▼ keys to pan across the screen.
- When OK is pressed only the zoomed picture will be shown on the screen.
- To exit **ZOOM** mode:
  – Press ▶ to resume playback.



FTS-Video

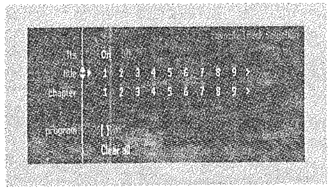
- The FTS-Video function allows you to store your favorite titles and chapters (DVD) and favorite tracks and indexes (VCD) for a particular disc in the player memory.
- FTS program can contain 20 items (titles, chapters etc.).
- A programmed FTS will be placed on top of the list when playback is activated. When the list is full, a new program will replace the last program on the list.
- The program can be selected and played at any time.

Storing an FTS-Video Program

- While playback is stopped, select **VIDEO FTS** ☑ in the menu bar.
- Press ▼ to open the menu.
  → The **VIDEO FTS** menu appears.
- Press ▶ or ◀ to select ON or OFF.

Storing titles/tracks

- Press ▼ to select **TITLES**.
- Use ▶ and ◀ to select the required title.
- Press OK if you wish to store the entire title.
  → The title number will be added to the list of selections.



Storing chapters/indexes

- Press ▼ on the selected title number.
  → The title number will be marked and the highlight moves to the first available chapter number for this title.
- Use ▶ and ◀ to select the required chapter number.
- Press OK to confirm the selection.
  → The title/chapter selection will be added to the list of selections.
- Press SYSTEM MENU to exit the **VIDEO FTS** ☑ menu.

Erasing an FTS-Video Program

- While playback is stopped, select **VIDEO FTS** ☑ in the menu bar.
- Use ▼ to select **PROGRAM**.
- Use ▶ and ◀ to select the required number.
- Press OK to erase the selection.
- Press SYSTEM MENU to exit.

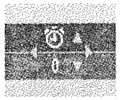
Erasing all selections

- While playback is stopped, select **VIDEO FTS** ☑ in the menu bar.
- Use ▼ to select **CLEAR ALL**.
- Press OK.
  → All selections will be erased.
- Press SYSTEM MENU to exit.

Auto Wake-up Timer

The wake-up timer allows your player to turn on after a preset time.

1 Select in the menu bar.
2 Press ▼.
→ Time edit box will appear.
3 Use the ▲ or ▼ to select the sleep time. The maximum time you can select is 600 minutes. Selection is made by 30 minutes steps each time.
4 Press OK to confirm the selection.
5 The Wake-up Timer will activate when the set is switch to standby-mode.



Special DVD Features

Checking the contents of DVD Video discs: Menus

DVDs may contain menus to navigate the disc and access special features. To use the menu, press the appropriate numerical key or use the ▼, ▲, ▶, ◀ keys to highlight your selection, then press OK.

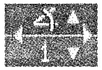
Title/Disc menu

- Press **DISC MENU**.
  → If the current title has a menu, the menu will appear on the screen. Otherwise, the disc menu will be displayed.
- The menu can list camera angles, spoken language and subtitle options, and chapters for the title.
- To remove the title menu, press **DISC MENU** again.

Camera Angle

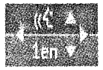
If the disc contains sequences recorded from different camera angles, the angle icon appears, showing the number of available angles and the angle being shown currently. You can then change the camera angle if you wish.

- Use the ▲/▼ keys to select the required angle.
  → After a while, playback changes to the selected angle. The angle icon remains displayed until multiple angles are no longer available.



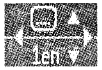
Changing the audio language

- Select (**AUDIO**) in the menu bar.
- Press **AUDIO** or ▲/▼ repeatedly to see the different languages.



Subtitles

- Select (**SUBTITLE**) in the menu bar.
- Press **SUBTITLE** or ▲/▼ repeatedly to see the different subtitles.



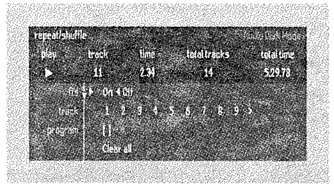
Special Video CD & SVCD Features

Playback Control (PBC)

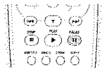
- Load a Video CD with PBC and press ▶.
- Go through the menu with the keys indicated on the TV screen until your chosen passage starts to play. If a **PBC** menu consists of a list of titles, you can select a title directly.
- Enter your choice with the numerical keys (0-9).
- Press RETURN to go back to the previous menu.
- You may also select **PBC OFF** under Personal Preferences.

Playing an Audio CD

- After loading the disc, playback starts automatically.
- If the TV is on, the Audio CD screen appears.
- The number of tracks and the total playing time of the disc will be shown on the TV screen.
- During playback, the current track number and its elapsed playing time will be shown on the TV screen and on the player display.
- Playback will stop at the end of the disc.
- To stop playback at any other time, press ■.

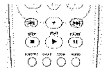


Pause



- Press II during playback.
- To return to playback, press ▶.

Search

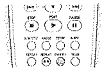


- To search forward or backward through the disc at four times the normal speed, hold down |◀◀ or ▶▶| for about one second during playback.
  → Search begins, and sound is partially muted.
- To step up to eight times the normal speed, press |◀◀ or ▶▶| again.
  → Search goes to eight times the speed, and the sound is muted.
- To return to four times the normal speed, press |◀◀ or ▶▶| again.
- If the TV is on, search speed and direction are indicated on the screen each time |◀◀ or ▶▶| is pressed.
- To end the search, press ▶ to resume playback or press ■ to stop playback.

Moving to another track

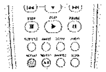
- Press ⏮ or ⏭ briefly during playback to go to the next track or to return to the beginning of the current track.
- Press ⏮ twice briefly to step back to the previous track.
- To go directly to any track, enter the track number using the numerical keys (0-9).

Shuffle



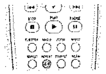
- Press **SHUFFLE** during playback.
  → The playing order of the tracks is changed.
- To return to normal playback, press **SHUFFLE** again.

Repeat track/disc



- To repeat the current track, press REPEAT.
  → 🔁 appears on the DVD player display.
- To repeat the entire disc, press REPEAT a second time.
  → 🔁 appears on the DVD player display.
- To exit Repeat mode, press REPEAT a third time.

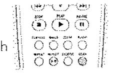
Repeat A-B



To repeat a specific portion of a track:

- Press REPEAT A-B at your chosen starting point.
  → 🔁 appears on the DVD player display.
- Press REPEAT A-B again at your chosen end point.
  → 🔁 appears on the DVD player display, and the sequence begins to play repeatedly.
- To cancel the sequence and continue playback, press REPEAT A-B.

Scan

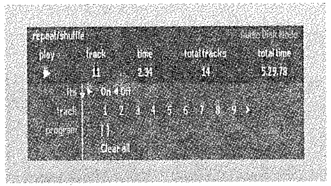


Scanning plays the first 10 seconds of each track on the disc.

- Press **SCAN**.
- To continue playback at your chosen track, press **SCAN** again or press ▶.

Favorite Track Selection (FTS) Program

- The FTS Program allows you to store your favorite tracks for a particular disc in the player memory.
- Each FTS Program can contain 20 tracks.



Storing an FTS Program

1 Load a disc and stop playback.
2 Use ▼ to go to the list of available tracks.
3 Use ▶ or ◀ to select tracks from the list.
To go directly to any track, enter the track number using the numerical keys (0-9).
4 Store each track by pressing OK.
→ The track numbers will be added to the list.
→ The number of tracks and the playing time of the program will be shown on the TV screen and the player display.

When your FTS Program is complete, press ▶ to start playback or, press ▲ to go back to Stop mode. In either case, the FTS Program will be automatically memorized.

Switching FTS ON/OFF

1 Use ▲ ▼ to select FTS.
2 Use ▶ or ◀ to select either ON or OFF.

Erasing a track from an FTS Program

1 Use ▼ to go to the list of selected tracks.
2 Use ▶ and ◀ to select the track number you wish to erase.
3 Press OK.
→ The track number will be erased from the list of selected tracks.

Erasing the complete program

1 Use ▼ to select **CLEAR ALL**, then press OK.
→ The complete FTS Program for the disc will be erased.

MP3 Disc Features *(for specific version only)*

Support following MP3-CD formats (ISO9660 format):

- Max. 30 characters
- Max. nested directory is 8 levels
- The max. ALB number is 32
- Supported VBR bit-rate
- Supported sampling frequencies for MP3 disc are: 32 kHz, 44.1 kHz, 48 kHz
- Supported Bit-rates of MP3 disc are: 32, 64, 96, 128, 192, 256 (kbps)

Following formats can't be supported

- The files like *.WMA, *.AAC, *.DLF, *.M3U, *.PLS
- Chinese filenames
- The non-session closed discs
- The discs recorded under UDF format

Downloading MP3 files from the Internet or copying songs from your own legal discs is a delicate process.

Sound Quality	Bit Rate	Approximate Reduction Ratio	Approximate total MP3-CD time	Comment
AM radio	32 kbps	40 : 1	40 hrs	Sound quality significantly affected - not recommended
FM radio	64 kbps	20 : 1	20 hrs	
Near-CD	96 kbps	15 : 1	15 hrs	Balanced sound quality - compression rate
CD-like	128 kbps	10 : 1	10 hrs	
CD*	256 kbps	5 : 1	5 hrs	Compression rate low - suggest to play CDs instead
CD*	320 kbps	3 : 1	3 hrs	

You may experience an occasional "skip" while listening to your MP3 files. This is normal.

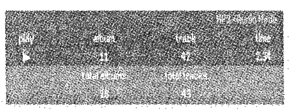
Additional note for MP3 disc Playback:
– In compliance with the SDMI, digital-out is muted while playing MP3 discs.
– Due to the recording nature of Digital Audio MP3 (DAM), only Digital Audio music will play.
– The disc reading time may exceed 10 seconds due to the large number of songs compiled onto one disc.
– Only the first session of multisession discs is supported.

Album/Title

This feature allows you to view and select the next or previous MP3 disc Album/Title.

1 Press ▲/▼ to scroll through the previous or next Album.
2 Press ◀/▶ to scroll through the previous or next Track.
3 You can also select the desired album/track number directly using the numeric keys on the remote control.

Note:
– ***In STOP mode:*** *numbers are used for ALBUM selection.*
– ***In PLAY mode:*** *numbers are used for TRACK selection.*



- Only the following functions are possible for MP3 discs:
  - STOP / PLAY / PAUSE
  - SKIP NEXT / PREVIOUS
  - REPEAT (TRACK / ALBUM / DISC)

MP3 Discs - Album/Track/Disc

- To repeat a track, press REPEAT.
  → **REPEAT TRACK** appears on the TV screen.
- To repeat an album, press REPEAT a second time.
  → **REPEAT ALBUM** appears on the TV screen.
- To repeat the entire disc, press REPEAT a third time.
  → **REPEAT DISC** appears on the TV screen.
- To exit REPEAT mode, press REPEAT a fourth time.
  → **REPEAT OFF** appears on the TV screen.

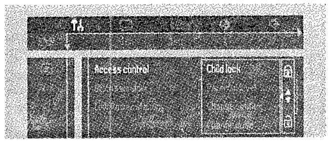
Access Control

Access Control: Child Lock
(DVD Video and Video CD)

Activating/deactivating the Child Lock

1 When disc playback is stopped, select **ACCESS CONTROL** in the features menu using the ▲/▼ keys.
2 Enter a 4-digit code of your own choice.
3 Enter the code a second time.
4 Move to "**CHILD LOCK**" using the ▲/▼ keys.
5 Move to **LOCK/UNLOCK** using the ▶ key.
6 Select **LOCK** using the ▲/▼ keys.
7 Press OK or ◀ to confirm, then press ◀ again to exit the menu.
→ Now unauthorized discs will not be played unless the 4-digit code is entered.
8 Select **UNLOCK** to deactivate the **CHILD LOCK**.

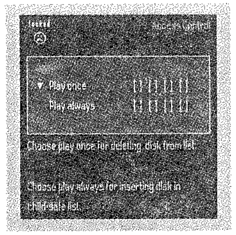
Note: Confirmation of the 4-digit code is necessary when:
- *The code is entered for the very first time (see above),*
- *The code is changed (see 'Changing the 4-digit code'),*
- *The code is cancelled (see 'Changing the 4-digit code').*



Authorizing discs

- Insert the disc. See 'Loading discs'.
→ The 'child protect' dialog will appear.
You will be asked to enter your secret code for 'Playback Once' or 'Playback Always.' If you select 'Playback Once', the disc can be played as long as it is in the player and the player is ON. If you select 'Playback Always', the disc will become child safe (authorized) and can always be played, even if the Child Lock is set to ON.

Notes:
– The player memory maintains a list of 120 authorized ('Child safe') disc titles. A disc will be placed in the list when 'Playback Always' is selected in the 'child protect' dialog.
– Each time a 'child safe' disc is played, it will be placed on top of the list. When the list is full and a new disc is added, the last disc in the list will be removed from the list.
– Double-sided DVDs may have a different ID for each side. In order to make the disc 'child safe', each side has to be authorized.
– Multi-volume VCDs may have a different ID for each volume. In order to make the complete set 'child safe', each volume has to be authorized.



Choose play once for deleting disk from list.

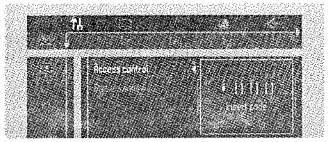
Choose play always for inserting disk in child-safe list.

Deauthorizing discs

- Insert the disc. See 'Loading discs'.
→ Playback starts automatically.
- Press ■ while ☺ is visible.
→ The ☹ will appear and the disc is now deauthorized.

Access Control: Parental Control (DVD Video only)

Movies on DVDs may contain scenes not suitable for children. Therefore, discs may contain 'Parental Control' information which applies to the complete disc or to certain scenes on the disc. These scenes are rated from 1 to 8, and alternative, more suitable scenes are available on the disc. Ratings are country dependent. The 'Parental Control' feature allows you to prevent discs from being played by your children or to have certain discs played with alternative scenes.



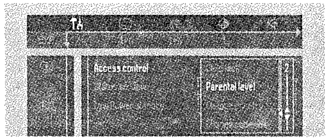
Activating/Deactivating Parental Control

1 When disc playback is stopped, select **ACCESS CONTROL** in the features menu using the ▲/▼ keys.
2 Enter your 4-digit code. If necessary, enter the code a second time.
3 Move to **Parental Control** using the ▲/▼ keys.
4 Move to **VALUE ADJUSTMENT** (1-8) using the ▶ key.
5 Then use the ▲/▼ keys or the numerical keys on the remote control to select a rating from 1 to 8 for the disc inserted.

Rating 0 (displayed as '– –'):
Parental Control is not activated. The Disc will be played in full.

Ratings 1 to 8:
The disc contains scenes not suitable for children. If you set a rating for the player, all scenes with the same rating or lower will be played. Higher rated scenes will not be played unless an alternative is available on the disc. The alternative must have the same rating or a lower one. If no suitable alternative is found, playback will stop and the 4-digit code has to be entered.

6 Press OK or ◀ to confirm, then press ◀ again to exit the menu.



Country

1 When disc playback is stopped, select **ACCESS CONTROL** in the features menu using the ▲/▼ keys.
2 Enter the 4-digit code.
3 Move to **CHANGE COUNTRY** using the ▼ key.
4 Press the ▶ key.
5 Select a country using ▲/▼.
6 Press OK or ◀ to confirm, then press ◀ again to exit the menu.

Changing the 4-digit code

1 When disc playback is stopped, select **ACCESS CONTROL** in the features menu using the ▲/▼ keys.
2 Enter the old code.
3 Move to **CHANGE CODE** using the ▼ key.
4 Press the ▶ key.
5 Enter the new 4-digit code.
6 Enter the code a second time and reconfirm by pressing OK.
7 Press ◀ to exit the menu.

If you forget your 4 digit code

1 Press ■ to exit the 'Child Protect' screen.
2 Select **ACCESS CONTROL** in the features menu using the ▲/▼ keys.
3 Move to **ENTER CODE** using the ▶ key.
4 The 4-digit code can be cancelled by pressing ■ four times in the 'Access Control-Enter Code' dialog.
5 You can then enter a new code (twice!) as described above (Changing the 4 digit code).

Parental Control Disclaimer

This DVD player features the **PARENTAL CONTROL** system which is intended to activate when playing DVD discs furnished with certain software coding. This is according to technical standards adopted by the set maker and disc content industries.
Please note that the **PARENTAL CONTROL** system will not operate a DVD disc which is not furnished with the appropriate software coding. Also note that at the time of release of this DVD player, certain aspects of the technical standards had not been settled between set makers and the disc industries.
On this basis, Philips cannot guarantee the functioning of the **PARENTAL CONTROL** system and denies any liability associated with unintended watching of disc content.
If in doubt, please make sure the disc plays according to your **PARENTAL CONTROL** settings before you allow children access to the player.

Before Requesting Service

If it appears that the DVD Video player is faulty, first consult this checklist. Something may have been overlooked. Under no circumstances should you attempt to repair the system yourself; this will invalidate the warranty.

Look for the specific symptom(s).Then perform only the actions listed to remedy the specific symptom(s).

Symptom	Remedy
No power	– Make sure the power cord is properly connected. – Check if there is power at the AC outlet by plugging in another appliance.
No picture	– Check if the TV is switched on. – Check the video connection. – Check if a DVD PAL format disc is inserted.
Distorted picture	– Check the disc for fingerprints and clean the disc with a soft cloth, wiping from the center to the edge in a straight line. – Sometimes a small amount of picture distortion may appear. This is not a malfunction.
Completely distorted picture or no Colour with player menu	– If the picture is distorted completely or if the picture rolls vertically, make sure the NTSC/PAL setting at the DVD player matches the video signal of your television. – If your TV video signal is NTSC, select the NTSC setting at the DVD player. – If your video signal is PAL, select the PAL setting. - See NTSC/PAL SETTINGS.
Distorted or black/white picture with DVD or Video CD	– The disc format does not match your TV's video signal (PAL/NTSC). – If your video signal is PAL, see NTSC/PAL Conversion.
No sound	– Check audio connections. – If you are using a HiFi amplifier, try another sound source.
Distorted sound from HiFi amplifier	– Check to make sure that no audio connections are made to the amplifier's phono input.
No audio at digital output	– Check the digital connections. – Check the settings menu to make sure the digital output is set to ALL or PCM. – Check if the audio format of the selected audio language matches your receiver capabilities. – Not applicable for MP3
Disc can't be played	– Ensure the disc label is facing up. – Clean the disc. – Check if the disc is defective by trying another disc. – Check to see if the disc is defective, badly scratched or warped (not flat).
No return to start-up screen when disc is removed	– Reset the unit by switching the player off, then on again. – Check to see if the program requires another disc to be loaded.
The player does not respond to the remote control	– Aim the remote control directly at the sensor on the front of the player. – Remove any obstacles between the player and the remote control. – Inspect or replace the batteries in the remote control.
Buttons do not work	– In order to completely reset the player, unplug the AC cord from the AC outlet. (Please ensure that the set is not in Initial Setup mode.)
Player does not respond to some operating commands during playback	– Operations may not be permitted by the disc. Refer to the instructions of the disc.
DVD Video player cannot read CDs/DVDs	– Use a commonly available cleaning CD/DVD to clean the lens before sending the DVD Video player for repair.

Appendix

Speaker Settings

6 Channel settings

Front speaker

L (Large): When the front speakers can reproduce low frequency signals below 120Hz
S (Small): When the front speakers cannot produce low frequency signals below 120Hz

Center Speaker

L (Large): When the center speaker can reproduce low frequency signals below 120Hz
S (Small): When the center speaker cannot produce low frequency signals below 120Hz
Off: When the center speaker is not connected

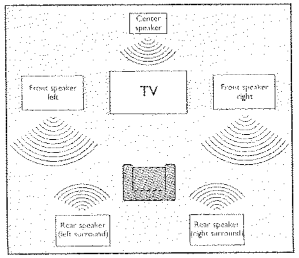
Surround speakers

L (Large): When the surround speakers can reproduce low frequency signals below 120Hz
S (Small): When the surround speakers cannot produce low frequency signals below 120Hz
Off: When the surround speakers are not connected

Subwoofer

On: When you connect a subwoofer
Off: When a subwoofer is not connected

Note:
– *Certain speaker settings are prohibited by the Dolby Digital licensing agreement.*

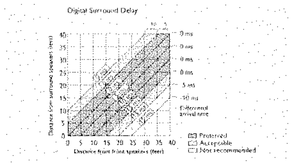


Delay times

The DVD player is set to reproduce correctly synchronized Digital Surround Sound in a listening area where the surround speakers are about 150cm nearer to the listening position than the front speakers, and the center speaker is in line with the front speakers. To adjust for other listening area arrangements, adapt delay times according to the following instructions:

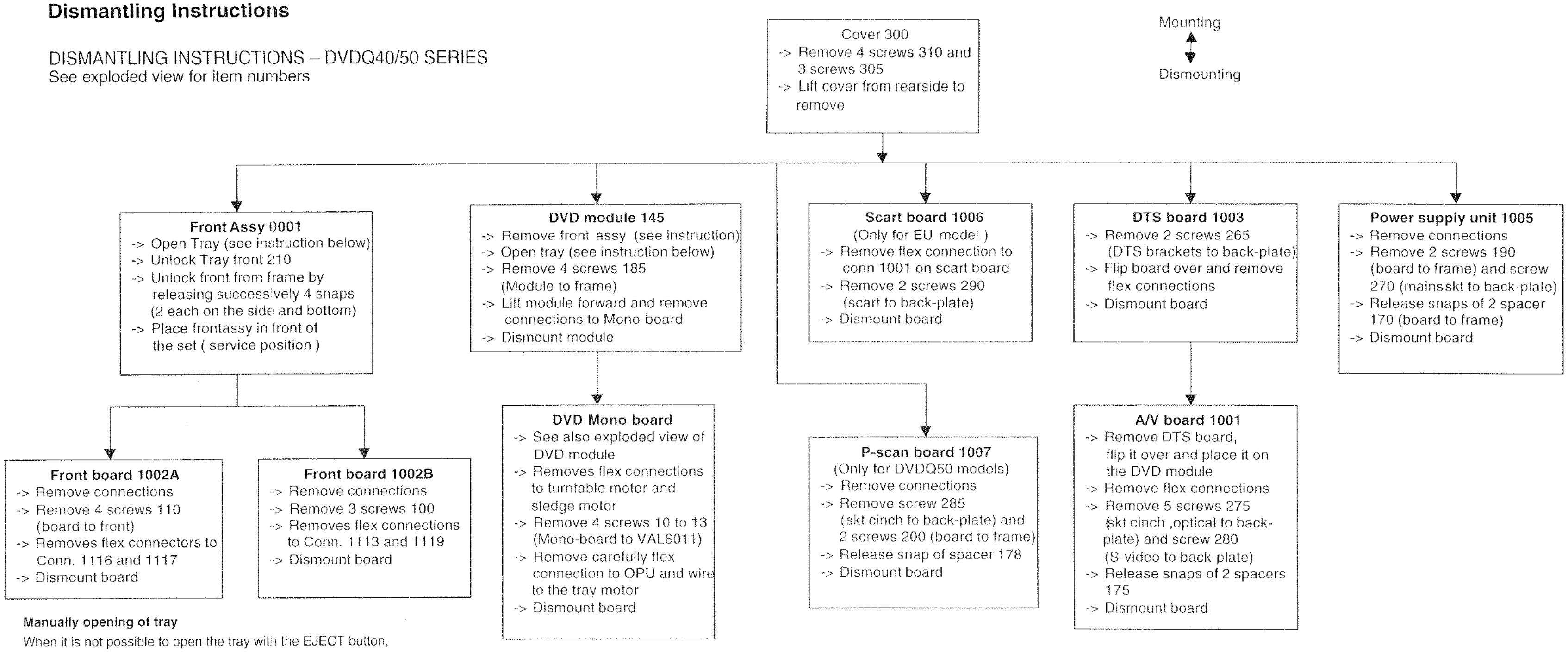
Digital Surround

Measure the distances in centimeters from the front speaker and the surround speaker to the listening positioning.
Subtract the surround distance from the front distance and divide by 30. The result is the required Surround Channel delay time in milliseconds.
If the center speaker is in line with the front speaker, no center speaker delay is needed. If, however, it is nearer the listening position, measure the distance in centimeters between the front and center speaker planes, and divide by 30. The result is the required Center Channel delay time in milliseconds.



Dismantling Instructions

DISMANTLING INSTRUCTIONS – DVDQ40/50 SERIES
See exploded view for item numbers



Mounting
Dismounting

Cover 300
-> Remove 4 screws 310 and 3 screws 305
-> Lift cover from rearside to remove

Front Assy 0001
-> Open Tray (see instruction below)
-> Unlock Tray front 210
-> Unlock front from frame by releasing successively 4 snaps (2 each on the side and bottom)
-> Place frontassy in front of the set (service position)

Front board 1002A
-> Remove connections
-> Remove 4 screws 110 (board to front)
-> Removes flex connectors to Conn. 1116 and 1117
-> Dismount board

Front board 1002B
-> Remove connections
-> Remove 3 screws 100
-> Removes flex connections to Conn. 1113 and 1119
-> Dismount board

DVD module 145
-> Remove front assy (see instruction)
-> Open tray (see instruction below)
-> Remove 4 screws 185 (Module to frame)
-> Lift module forward and remove connections to Mono-board
-> Dismount module

DVD Mono board
-> See also exploded view of DVD module
-> Removes flex connections to turntable motor and sledge motor
-> Remove 4 screws 10 to 13 (Mono-board to VAL6011)
-> Remove carefully flex connection to OPU and wire to the tray motor
-> Dismount board

Scart board 1006
(Only for EU model)
-> Remove flex connection to conn 1001 on scart board
-> Remove 2 screws 290 (scart to back-plate)
-> Dismount board

P-scan board 1007
(Only for DVDQ50 models)
-> Remove connections
-> Remove screw 285 (skt cinch to back-plate) and 2 screws 200 (board to frame)
-> Release snap of spacer 178
-> Dismount board

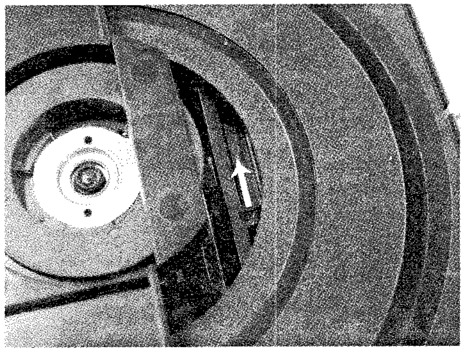
DTS board 1003
-> Remove 2 screws 265 (DTS brackets to back-plate)
-> Flip board over and remove flex connections
-> Dismount board

A/V board 1001
-> Remove DTS board, flip it over and place it on the DVD module
-> Remove flex connections
-> Remove 5 screws 275 (skt cinch ,optical to back-plate) and screw 280 (S-video to back-plate)
-> Release snaps of 2 spacers 175
-> Dismount board

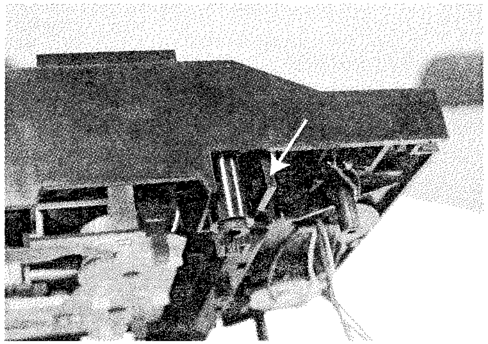
Power supply unit 1005
-> Remove connections
-> Remove 2 screws 190 (board to frame) and screw 270 (mains skt to back-plate)
-> Release snaps of 2 spacer 170 (board to frame)
-> Dismount board

Manually opening of tray

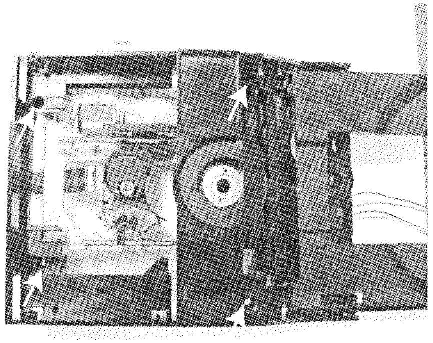
When it is not possible to open the tray with the EJECT button, the tray can manually be opened.
When no disc is loaded, unlock the tray by moving the slide from left to right and pull tray outwards.



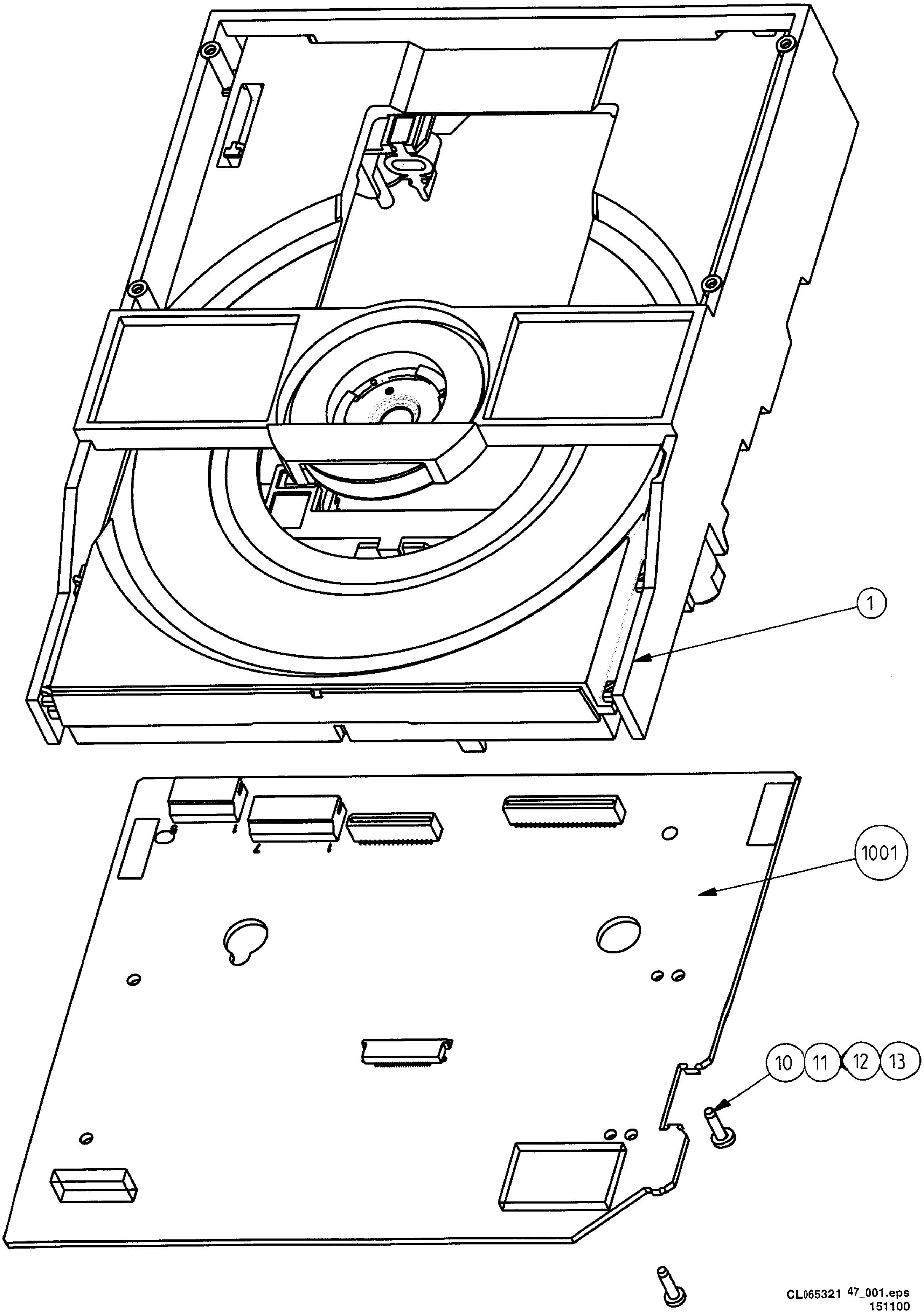
When a disc is loaded, unlock the tray by pushing the slide inwards with a screwdriver and pull tray outwards.



Remove 4 screws to remove loader.

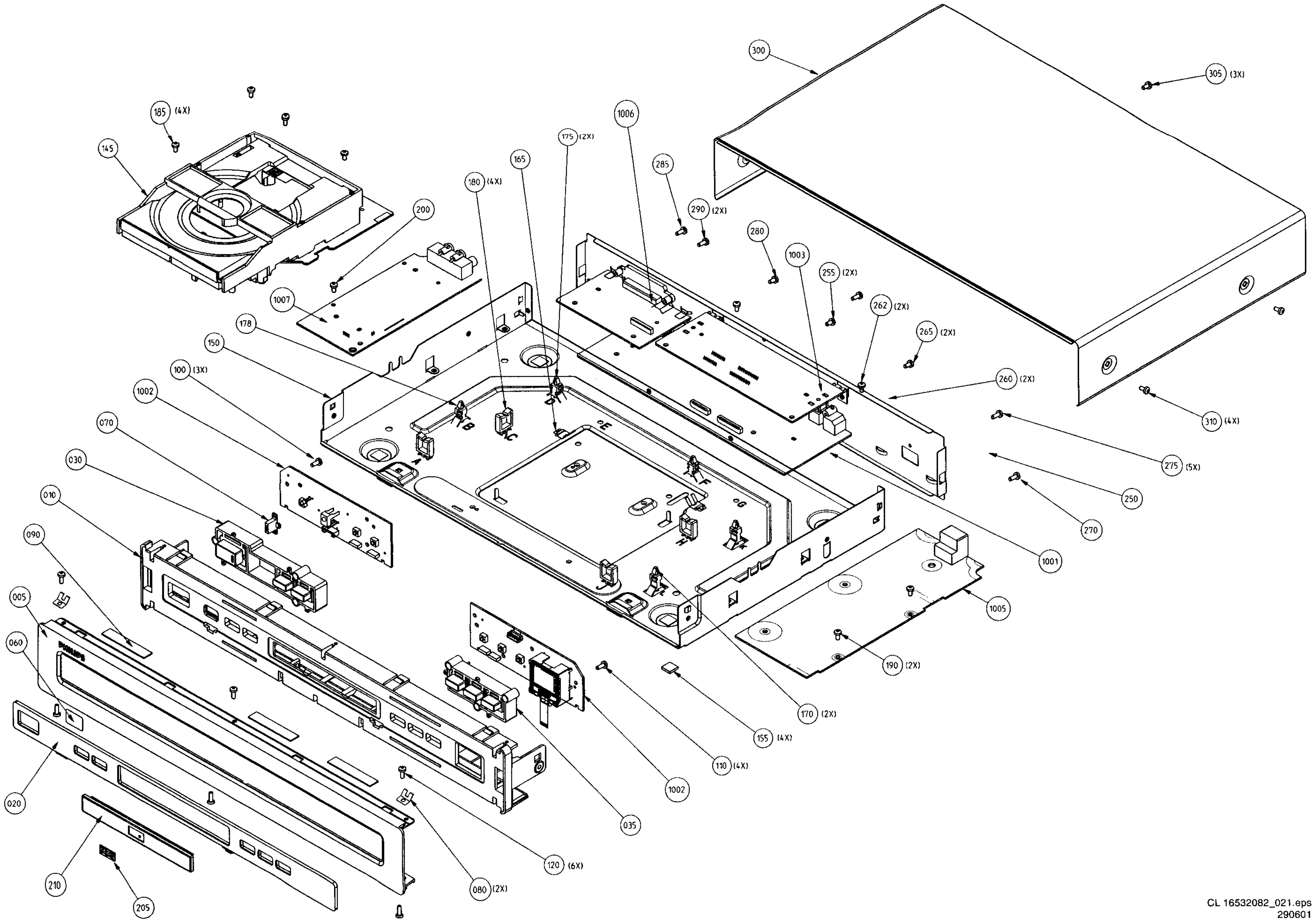


CL 16532082_020.eps
020701

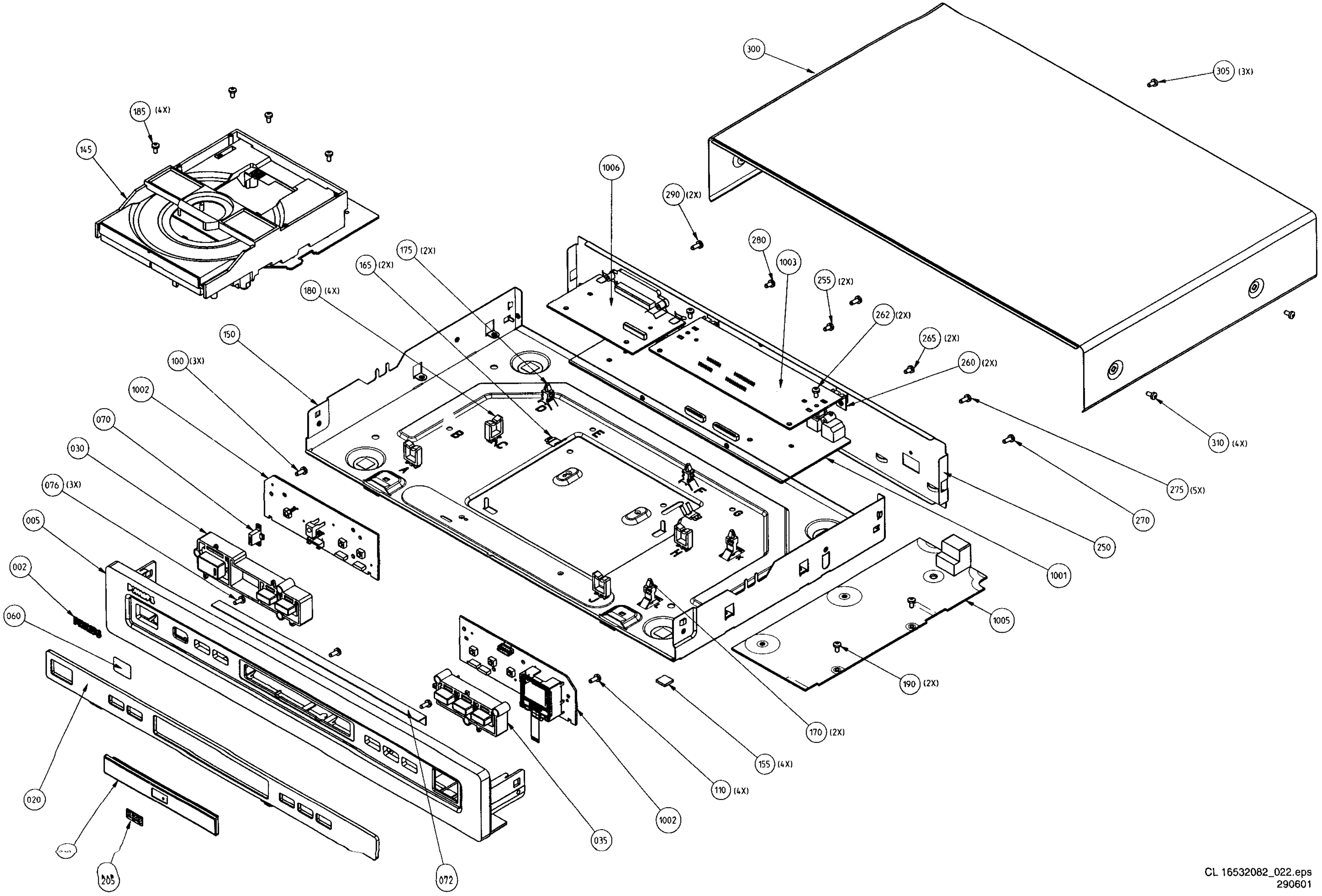

CL065321 47_001.eps
151100

4.2 Exploded Views

4.2.1 DVD Q50


300
305 (3X)
185 (4X)
145
1006
175 (2X)
165
180 (4X)
285
290 (2X)
280
1003
255 (2X)
262 (2X)
265 (2X)
200
1007
178
150
100 (3X)
1002
070
030
010
090
005
060
020
210
205
260 (2X)
310 (4X)
275 (5X)
250
270
1001
1005
190 (2X)
170 (2X)
155 (4X)
110 (4X)
1002
035
120 (6X)
080 (2X)
A
B
C
D
E
F
G
H
J
K
L

CL 16532082_021.eps
290601


300
305 (3X)
185 (4X)
145
1006
290 (2X)
280
1003
255 (2X)
262 (2X)
265 (2X)
260 (2X)
175 (2X)
165 (2X)
180 (4X)
150
100 (3X)
1002
070
030
076 (3X)
005
002
060
310 (4X)
275 (5X)
270
250
1001
1005
190 (2X)
170 (2X)
155 (4X)
110 (4X)
1002
035
072
020
205
A
B
C
D
E
F
G
H

CL 16532082_022.eps
290601

4.3 Service Position

See figure 4-1 for the service position

1. Remove the cables from the cable tie housing.

2. Remove 4 screws that mount the DVD module to the bottom frame.

3. Move the DVD module backward slightly and flip the module over, so that the component side of the board faces upwards, and the module is in the service position.

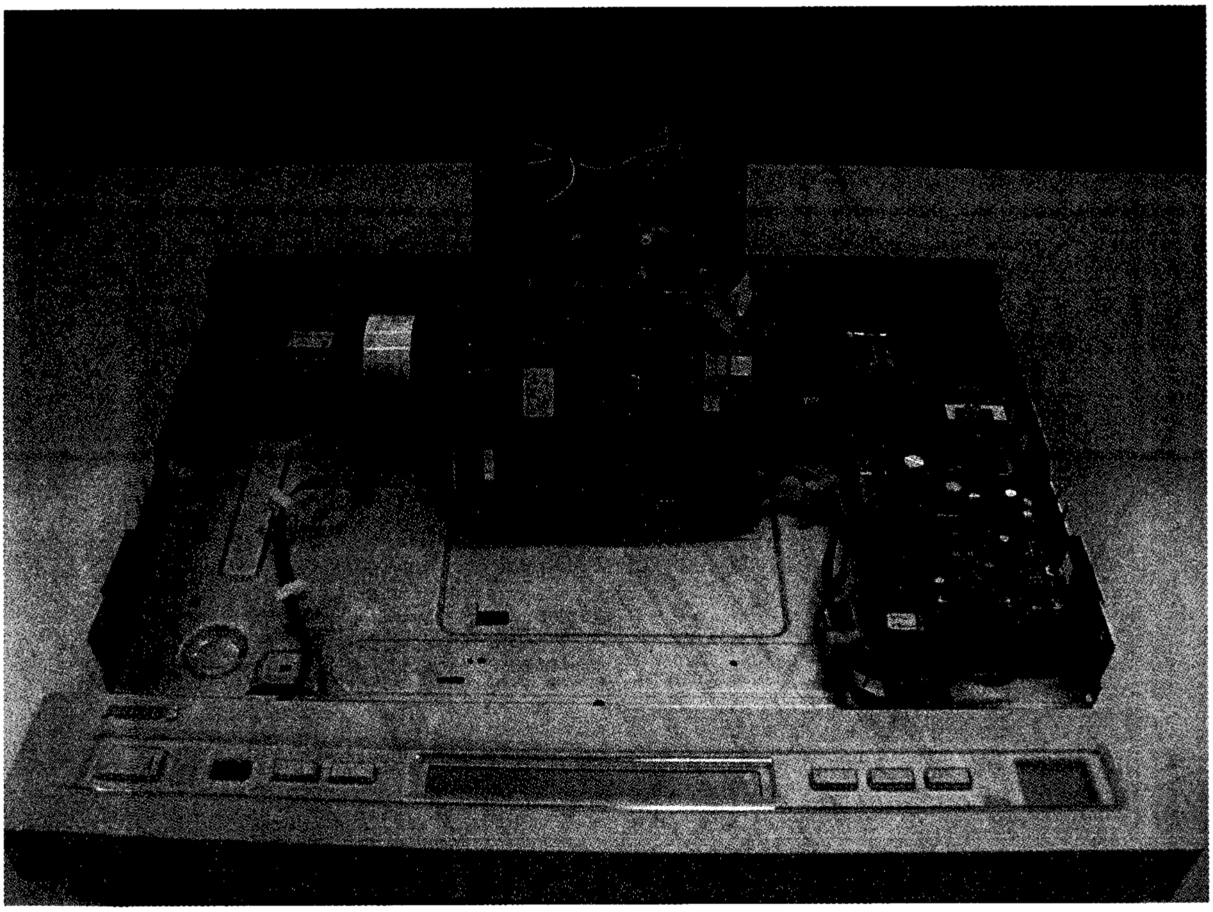


Figure 4-1

5. Diagnostic Software Descriptions And Troubleshooting

5.1 Dealerscript

5.1.1 Purpose of Dealer Script

The dealer script can give a diagnosis on a standalone DVD player; no other equipment is needed to perform a number of hardware tests to check if the DVD player is faulty. The diagnosis is simply a "error" or "pass" message; no indication is given of faulty hardware modules. Only tests within the scope of the diagnostic software will be executed hence only faults within this scope can be detected.

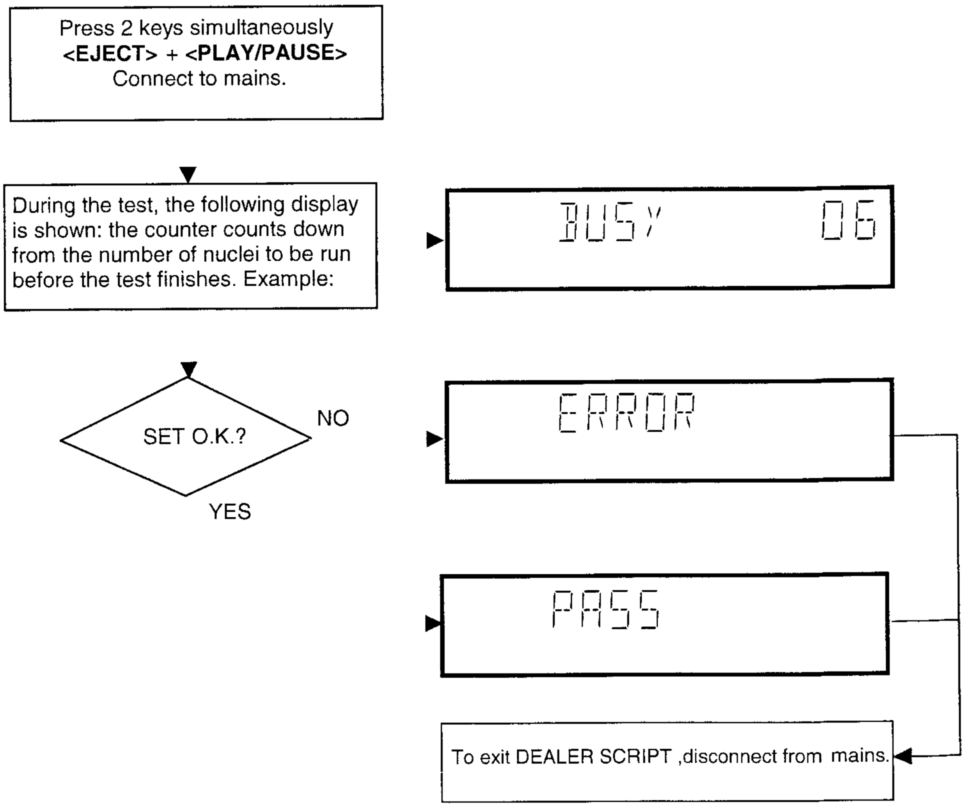
5.1.2 Contents of Dealer Script

The dealer script executes all diagnostic nuclei that do not need any user interaction and are meaningful on a standalone DVD player.
The nuclei called in the dealer script are the following (the number after each nucleus name corresponds with the number being on the local display when the nucleus is executed during the dealer script):

Nucleus		Description
PapChksFl	6	Calculate and verify checksum of FLASH memory.
PapI2cDisp	5	Checks the I2C interface with the slave processor on the display PCB.
PapS2bEcho	4	Checks the I2C interface to the basic engine.
PapI2cNvram	3	Checks the I2C interface with the NVRAM.
PapNvramWrR	2	Pattern test of all locations in the NVRAM
CompSdramWrR	1	Pattern test of all locations in the SDRAM(s).

CL'6532082_024.eps
290600

Figure 5-1


Press 2 keys simultaneously
<EJECT> + <PLAY/PAUSE>
Connect to mains.
During the test, the following display is shown: the counter counts down from the number of nuclei to be run before the test finishes. Example:
BUSY 06
SET O.K.?
NO
YES
ERROR
PASS
To exit DEALER SCRIPT ,disconnect from mains.

CL 16532082_037.eps
020701

Figure 5-2

5.2 Player Script

5.2.1 Purpose Of Player Script

The Player script will give the opportunity to perform a test that will determine which of the DVD player's modules are faulty, to read the error log and error bits and to perform an endurance loop test. To successfully perform the tests, the DVD player must be connected to a tv set to check the output of a number of nuclei. For DVDv2b a multi-channel amplifier, a set of 6 boxes and an external video source are necessary to test. To be able to check results of certain nuclei, the player script expects some interaction of the user (i.e. to approve a test picture or a test sound). Some nuclei (e.g. nuclei that test functionality of the Basic Engine module) require that the DVD player itself is opened, to enable the user to observe moving parts and approve their movement visually. Only tests within the scope of the diagnostic software will be executed hence only faults within this scope can be detected.

5.2.2 Contents Of Player Script

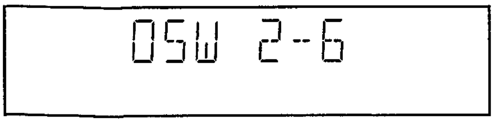
The player script contains all nuclei that are useful on a DVD player that is connected to a tv-set and help to determine which module of the DVD player is faulty, as well as to read out the contents of the error logs.

5.2.3 Structure Of Player Script

The player script consists of a set of nuclei testing the three hardware modules in the DVD player: the Display PWB, the Digital PWB and the Basic Engine.
Nuclei run by the player test need some user interaction; in the next paragraph this interaction is described. The player test is done in two phases:

1. Interactive tests: this part of the player test depends strongly on user interaction and input to determine nucleus results and to progress through the full test. Reading the error log and error bits information can be useful to determine any errors that occurred recently during normal operation of the DVD player.
2. The loop test will loop through the list of nuclei indefinitely, till the player is reset. The list of nuclei is as follows:
   - VideoScartSwComm
   - PapChksFlash
   - PapI2cNvram
   - CompSdramWrR
   - PapS2bEcho
   - PapI2cDisp

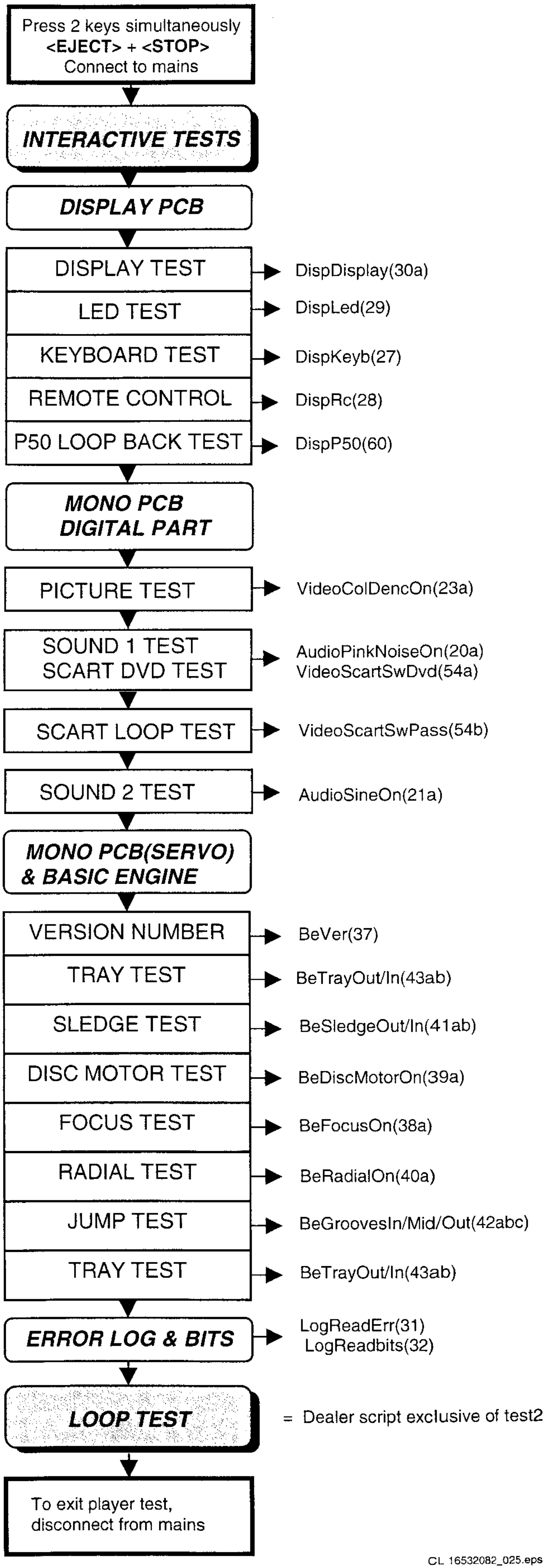
For DSW version 1.6 and above. the DSW version number will be displayed on the local display. Press PLAY/PAUSE to continue to the display test.
The display should look like the following:



CL 16532082_026.eps
290601

Figure 5-3

5.2.4 Survey


Press 2 keys simultaneously
<EJECT> + <STOP>
Connect to mains
INTERACTIVE TESTS
DISPLAY PCB
DISPLAY TEST
DispDisplay(30a)
LED TEST
DispLed(29)
KEYBOARD TEST
DispKeyb(27)
REMOTE CONTROL
DispRc(28)
P50 LOOP BACK TEST
DispP50(60)
MONO PCB DIGITAL PART
PICTURE TEST
VideoColDencOn(23a)
SOUND 1 TEST
SCART DVD TEST
AudioPinkNoiseOn(20a)
VideoScartSwDvd(54a)
SCART LOOP TEST
VideoScartSwPass(54b)
SOUND 2 TEST
AudioSineOn(21a)
MONO PCB(SERVO) & BASIC ENGINE
VERSION NUMBER
BeVer(37)
TRAY TEST
BeTrayOut/In(43ab)
SLEDGE TEST
BeSledgeOut/In(41ab)
DISC MOTOR TEST
BeDiscMotorOn(39a)
FOCUS TEST
BeFocusOn(38a)
RADIAL TEST
BeRadialOn(40a)
JUMP TEST
BeGroovesIn/Mid/Out(42abc)
TRAY TEST
BeTrayOut/In(43ab)
ERROR LOG & BITS
LogReadErr(31)
LogReadbits(32)
LOOP TEST
= Dealer script exclusive of test2
To exit player test, disconnect from mains

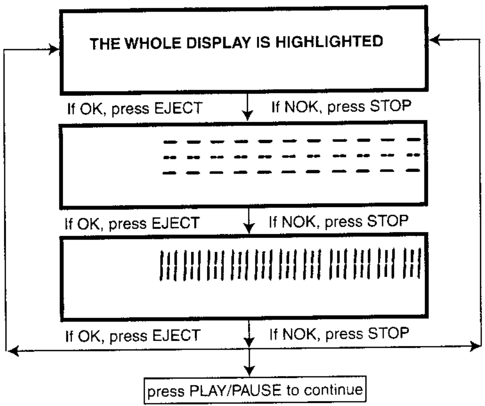
CL 16532082_025.eps
290601

Figure 5-4

5.3 Display PCB

5.3.1 Display Test

The display test is performed by nucleus DispLCDisplay. By putting a series of test patterns on the local display, the local display is tested. To step through all different patterns, the user must either press EJECT (pattern is ok) or STOP (pattern was incorrect) to proceed to the next pattern. The display of patterns is continued in a cyclic manner, shown in Fig. 5-5, until the user presses PLAY/PAUSE. If the user presses PLAY/PAUSE before all display patterns are tested, the DispLCDisplay nucleus will return FALSE (display test unsuccessful).



CL 16532082_027.eps
290601

Figure 5-5

LCD Displays Backlight Test

The setting of the backlight brightness of the LCD display can be performed by the nucleus DispLCDBklight. To step through the 3 different brightness levels, the user either press EJECT (display is OK) or STOP (display is incorrect) to proceed to the next display. The display of the brightness levels is continued in a cyclic manner until the user presses PLAY/PAUSE. The brightness pattern is accompanied by a text on the LCD display to indicate its' current brightness level.

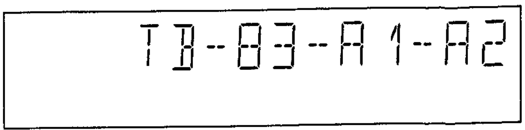
If the user presses PLAY/PAUSE before all display patterns are tested, the DispLCDBklight nucleus will return FALSE (diplay test unsuccessful)

5.3.2 LED Test

The LED(s) on the DVD player is (are) tested by nucleus DispLed. The user must check if the LED(s) is (are) lighted; if it is, press EJECT, if it is not, press STOP. By pressing PLAY/PAUSE the script will proceed to the next test. If the user presses PLAY/PAUSE before EJECT or STOP, the DispLed nucleus will return TRUE (LED test successful).

5.3.3 Keyboard Test

The keyboard of the DVD player is tested by nucleus DispKeyb. The user is expected to press all keys on the local keyboard once. The code of the key pressed is shown on the local display (1 hexadecimal digit) immediately followed by a (hexadecimal) number indicating how many times that key has been pressed. Example of the local display during this test:



CL 96532065_007.eps
120799

Figure 5-6

The key-codes displayed on the local display will scroll from right to left when the display gets full, the text "tb-" will remain on display.

key id.	key
0	PLAY
1	NEXT
2	PREVIOUS
4	STOP
5	EJECT
J	STANDBY

CL16532082_028.eps
020701

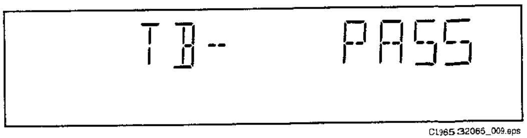
Figure 5-7

If any keys are detected more than once (due to hardware error), the key-code is displayed twice (or more), with the second digit increased by 1.

If the user does not press all keys minimally once (in any order), the DispKeys nucleus will return FALSEand cause an error in the overall result of the player script.

The user can leave the keyboard test by pressing the PLAY/PAUSE key on the local display of the DVD player for at least one full second.

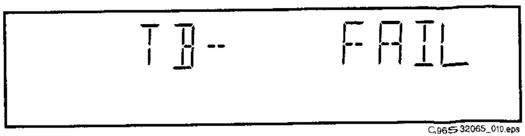
The result of the keyboard test is shown on local display as follows:



CL 96532065_009.eps
120799

Figure 5-8

Or



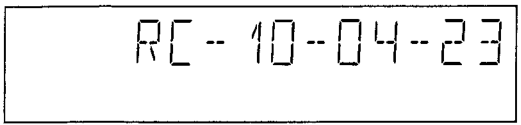
CL 96532065_010.eps
120799

Figure 5-9

Pressing PLAY/PAUSE on the local keyboard again will proceed to the next text.

5.3.4 Remote Control Test

The remote control of the DVD player is tested by nucleus DispRc. The user must press any key on the remote control just once. The codes of the key pressed will be shown on the local display in hexadecimal format. Example:



CL 96532065_011.eps
120799

Figure 5-10

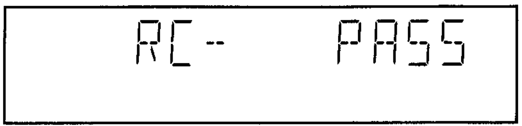
In this example 23 is the hexidecimal code of the pressed RC key. The user can leave the remote-control test by pressing PLAY/PAUSE on the local keyboard of the DVD player. The remote control test is successful if a code was received before the user pressed the PLAY/PAUSE key; pressing the PLAY/PAUSE key before pressing a key on the remote control gives an error in the remote control test (note that the remote control test will also fail if a key on the remote control was pressed but no code was received). The remote control test does not check upon the contents of the received code, that is it will not be checked if the received code matches the key pressed. If desired, the user can manually check this code by using a code-table for the remote control key-codes.

C Key id	Hexadecimal code
STANDBY	0C
STOP	31
PLAY	2C
PLAY BACKWARD	2D
PAUSE	30
STEP FORWARD	F6
STEP BACKWARD	F5
FORWARD	28
FORWARD 4X	DF
FORWARD 8X	E0
BACKWARD	29
BACKWARD 4X	DE
BACKWARD 8X	DD
SLOW	22
SLOW 2	D9
SLOW BACKWARD	23
SLOW BACKWARD 2	DA
NEXT	20
PREVIOUS	21
CURSOR UP	58
CURSOR DOWN	59
CURSOR LEFT	5A
CURSOR RIGHT	5B
OK	5C
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
TOGGLE	C8
ANGLE	85
AUDIO	4E
SUBTITLES	4B
SUBTITLE ON/OFF	E3
ROOT MENU	54
TITLE MENU	71
MENU	D1
SETUP MENU	82
OSD ON/OFF	F
RETURN	83
RESUME	D7
SCAN	2A
SHUFFLE	1C
REPEAT	1D
A/B REPEAT	3B
TOGGLE SCART	43
OPEN/CLOSE	42
FTS	FB
KARAOKE	E4
OPTION	FA

CL06532096_003.eps
050700

Figure 5-11

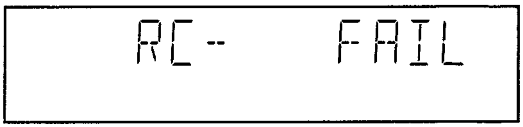
After pressing PLAY/PAUSE, the result of the remote control test is displayed on the local display of the DVD player as follows:



CL 96532065_013.eps
120799

Figure 5-12

Or



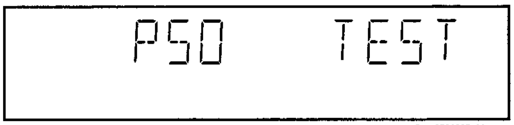
CL 96532065_014.eps
120799

Figure 5-13

Pressing PLAY/PAUSE on the local keyboard again will proceed to the next test.

5.3.5 P50 Loop-Back Test

For the P50 loop-back test, the user must first press a key to decide if the test is to be performed.
The display will show the following message:

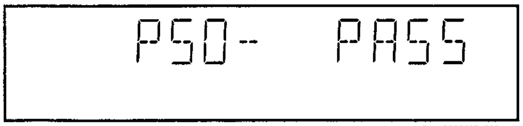


CL 16532007_004.eps
010201

Figure 5-14

If the user presses STOP, the P50 test will be skipped.
If the user presses EJECT, the P50 test is performed and the result is displayed as follows:

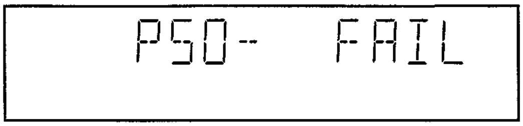
Test successfull:



CL 16532007_005.eps
010201

Figure 5-15

Test fails:



CL 16532007_006.eps
010201

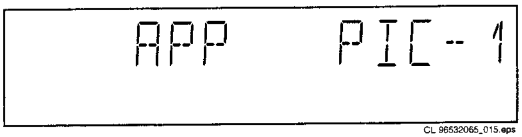
Figure 5-16

Press the PLAY/PAUSE key to continue to the next text

5.4 Mono PCB Digital Part

5.4.1 Picture Test

The picture test is performed by putting a predefined picture (colour bar) on the display (nucleus VideoColDencOn) and asking the user for confirmation. The display will show the following message:



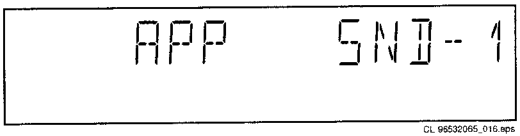
CL 96532065_015.eps
120799

Figure 5-17

By pressing EJECT the user confirms the test, pressing STOP will indicate the picture was invisible or incorrect. Pressing PLAY/PAUSE will proceed to the next test

5.4.2 Sound 1 & SCART DVD Test

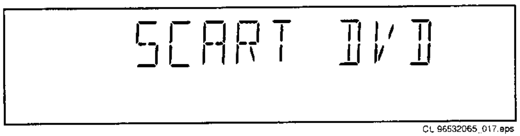
The first soundtest is performed by starting a pink noise sound that needs confirmation from the user (nucleus AudioPinkNoiseOn); the display will show the following message very shortly:



CL 96532065_016.eps
120799

Figure 5-18

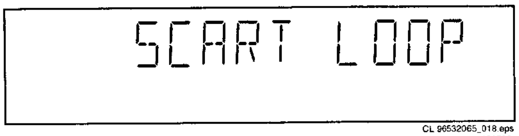
After starting up sound 1, SCART loop-trough will be simultaneously active during this test. SCART loop-trough will be measured with the aid of an external video source. When entering the SCART loop-trough, the local display indicates:



CL 96532065_017.eps
120799

Figure 5-19

On the TV screen a colour bar (generated by nucleus VideoColDencOn) is visual and the internally generated pinknoise is audible. By pressing EJECT the user confirms the test, pressing STOP will indicate the sound was inaudible or incorrect. Pressing PLAY/PAUSE will proceed to the next test; if the user presses PLAY/PAUSE without pressing EJECT or STOP first, the result of this test will be TRUE (sound ok). By pressing the PLAY/PAUSE button there will be switched over to the external source, this must become now visible on the TV screen (using the SCART). The local display indicates:



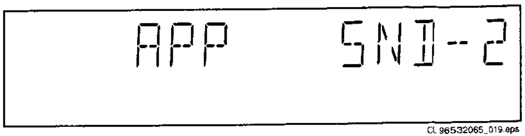
CL 96532065_018.eps
120799

Figure 5-20

The internally generated colour bar is still available on the CVBS and Y/C outputs. And the pinknoise-signal is still available on the cinch audio outputs. By pressing the EJECT button, the internal generated colour bar becomes visual again.
The test can be exited by pressing the PLAY/PAUSE key for more than one second.

5.4.3 Sound 2 Test

The second sound test is performed by producing a sine audio output (nucleus AudioSineOn). The signal can be stopped by pressing the STOP-key. The display will show the following message:



CL 96532065_019.eps
120799

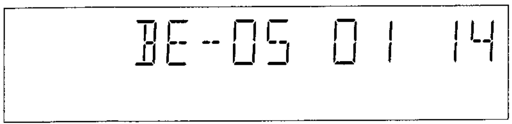
Figure 5-21

By pressing EJECT the user confirms the test, pressing STOP will indicate that something went wrong. Pressing PLAY/PAUSE will proceed to the next; if the user presses PLAY/PAUSE without pressing EJECT or STOP first, the result of this test will be TRUE (sound ok).

5.5 Basic Engine

5.5.1 Version Number

In the basic engine tests, the version number of the Basic Engine will be shown first, as the following example:



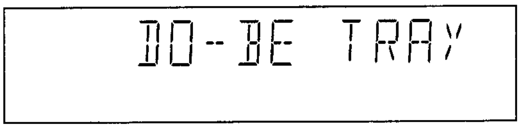
CL 16532082_029.eps
290601

Figure 5-22

By pressing the PLAY/PAUSE key, the Basic Engine tests are started.

5.5.2 Tray Test

First, the tray is tested. The purpose of this test is also to give the user the opportunity to put a disc in the tray of the DVD player. Some tests on the Basic Engine require that a disc(e.g. DVD MPTD test disc) is present in the player. At the end of the Basic Engine tests this tray test will be repeated solely to enable the user to remove the disc in the tray. The local display will look as follows:



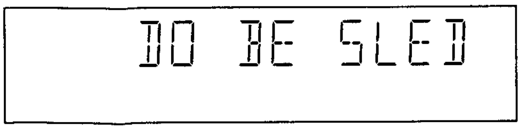
CL 96532065_021.eps
120799

Figure 5-23

By pressing EJECT or STOP the user can toggle the position of the tray. Note that this test will not contribute to the test result of the Basic Engine. Pressing PLAY/PAUSE will proceed to the next test, after the tray has been closed (by the software) if it was open.

5.5.3 Sledge Test (Visual Test)

The second Basic Engine test tests the sledge; the user can move the sledge as many times as desired by using EJECT (nucleus BeSledgeOut) and STOP (nucleus BeSledgeIn). Pressing PLAY/PAUSE on the local keyboard proceeds to the next test. Note that this test will not contribute to the test result of the Basic Engine. The local display will look as follows during the sledge test:

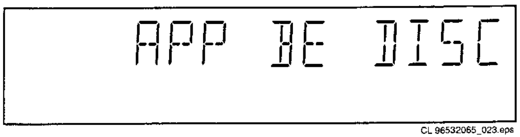


CL 96532065_022.eps
120799

Figure 5-24

5.5.4 Disc Motor Test (Visual Test)

The third Basic Engine test tests the disc motor (nucleus BeDiscMotorOn); the local display looks as follows:



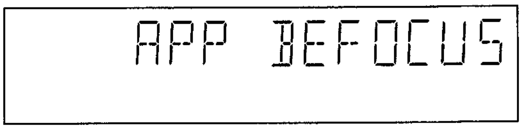
CL 96532065_023.eps
120799

Figure 5-25

By pressing EJECT the user confirms that the disc motor is running; pressing STOP indicates the disc motor does not work. Pressing PLAY/PAUSE proceeds to the next test, after a reset of the disc motor (nucleus BeDiscMotorOff). If the user presses PLAY/PAUSE before pressing EJECT or STOP, the result of this test will be TRUE (disc motor is running).

5.5.5 Focus Test (Visual Test)

The fourth Basic Engine test tests the focussing; first focussing is turned on by calling nucleus BeFocusOn. The display will look as follows:



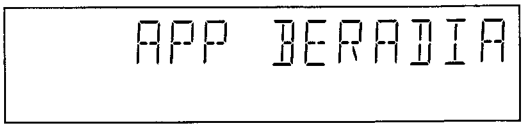
CL 96532065_024.eps
120799

Figure 5-26

By pressing EJECT the user confirms that the focussing was succesful; pressing STOP indicates a focussing failure. Pressing PLAY/PAUSE proceeds to the next test after a reset of the focussing (nucleus BeFocusOff); if PLAY/PAUSE is pressed before EJECT or STOP, the result of this test will be TRUE (focus successful).

5.5.6 Radial Test (Visual & Listening Test)

The fifth Basic Engine test tests the radial functionality (nucleus BeRadialOn); the local display looks as follows:



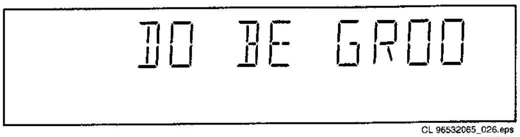
CL 96532065_025.eps
120799

Figure 5-27

By pressing EJECT the user confirms that the radial function worked; pressing STOP indicates the function does not work. Pressing PLAY/PAUSE proceeds to the next test, after a reset of the radial (nucleus BeRadialOff). If the user presses PLAY/PAUSE before pressing EJECT or STOP, the result of this test will be TRUE (radial successful).

5.5.7 Jump Test (Listening Test)

The sixth and last Basic Engine test tests the jumping by calling nuclei BeGroovesIn, BeGroovesMid and BeGroovesOut. During this test, the local display looks as follows:



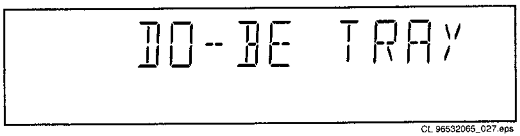
CL 96532065_026.eps
120799

Figure 5-28

The user can switch between the three different types of groove settings by pressing EJECT (forward to next nucleus in the list In-Mid-Out) or STOP (backward in the list In-Mid-Out). This is done in a cyclic manner; note that this test will not contribute to the test result of the Basic Engine. Pressing PLAY/PAUSE proceeds to the next test, after the disc motor has been shut off with a call to nucleus BeDiscMotorOff.

5.5.8 Tray Test

As a last action for the Basic Engine tests, the tray test is repeated. The local display will look as follows:



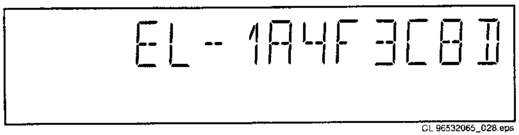
CL 96532065_027.eps
120799

Figure 5-29

This test is meant to give the user the opportunity to remove the disc in the tray. The tray position can be toggled using the EJECT and STOP key. The tray will be closed (by the software, if it is open) before proceeding to the next test when the user presses the PLAY/PAUSE key.

5.5.9 Error Log (See Table On the Next Page)

Reading the error log and error bits information can be useful to determine any errors that occurred recently during normal operation of the DVD player. Reading the error log is done by nucleus LogReadErr. The display during the errorlog readout looks as follows :



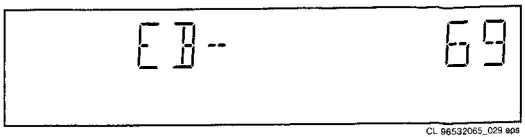
CL 96532065_028.eps
120799

Figure 5-30

By pressing EJECT or STOP the user can move forward or backward (respectively) through the logged error codes. The highlighted number indicates which errorcode is currently on display (in the example above, errorcode number 4 is displayed). If "0000" is displayed at all positions, the error log is empty. Display of the logged errors is done in a cyclic manner. The errorcode with the lowest highlighted number is the most recent. By pressing PLAY/PAUSE on the local keyboard, the user can proceed to the next test.

5.5.10 Error Bits (See Table On the next page)

Reading the error bits is done by nucleus LogReadBits. The display during the errorbits readout looks as follows:



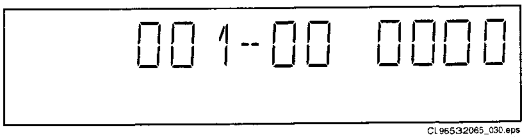
CL 96532065_029.eps
120799

Figure 5-31

Only the set errorbits will be shown by their (decimal) number. Refer to the appropriate documentation for the explanation of each bit number. If the display only shows "EB-0", no error bits were set. By pressing PLAY/PAUSE the user can continue to the next test.

5.6 Loop Test (See Table Below)

At the start of the loop test, the display will show the result of the interactive player test:



CL 96532065_030.eps
120799

Figure 5-32

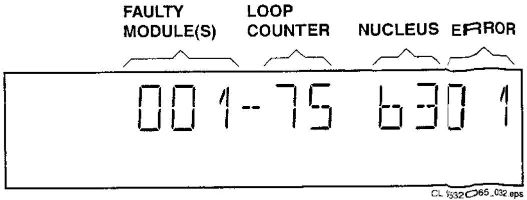
The left side of the display contains a 3-digit code, which can have a value between 000 and 111. These values are to be interpreted as follows:

Displayed Value	Indication for each module		
	Basic Engine	Mono PCB	Display PCB
000	ok	ok	ok
001	ok	ok	faulty
010	ok	faulty	ok
011	ok	faulty	faulty
100	faulty	ok	ok
101	faulty	ok	faulty
110	faulty	faulty	ok
111	faulty	faulty	faulty

CL 96532065_031.eps
120799

Figure 5-33

The loop test will perform the same nuclei as the dealer test, but it will loop through the list of nuclei indefinitely. The display of the DVD player will display not only the three digits indicating correct/faulty modules and the last found error code (as mentioned, faults are detected as far as they can be within the scope of the diagnostic software), but also a loop counter indicating how many times the loop has been gone through. Example:



CL 96532065_032.eps
120799

Figure 5-34

The number after the hyphen indicates the number of times the loop test has been performed; the 4 digits at the right side of the display show the last error that was found when running the loop test: the leftmost two digits of this code indicate which nucleus resulted in a fault; the rightmost two digits refer to the faultcode within that nucleus. For further explanation of this error code, see list of error codes below.

ERROR CODES LOOP TEST

ERROR CODE	NUCLEUS NUMBER	ERROR DESCRIPTION
0601	6	Calculated checksum of FLASH is not correct
1101	11	I2C bus busy before start
1102		NVRAM access time-out
1103		No NVRAM Acknowledge
1104		NVRAM reply time-out
1201	12	I2C bus busy
1202		I2C bus not working
1203		Slave controller not responding
1204		Slave response is not correct
1301	13	Parity error from basic engine to serial
1302		Parity error from serial to basic engine
1303		No communication between serial and basic engine
1304		Communication time-out error
1601	16	The SDRAM is faulty
5201	52	I2C bus busy
5202		Error sending I2C command to COLOR SETUP IC
5203		Colour setup IC not responding
5204		Colour setup IC response is not correct
5401	54	I2C bus busy
5402		Error sending I2C command to SCART SWITCH IC
5403		SCART Switch is not responding
5403		SCART Switch response is not correct

CL06532096_006.eps
050700

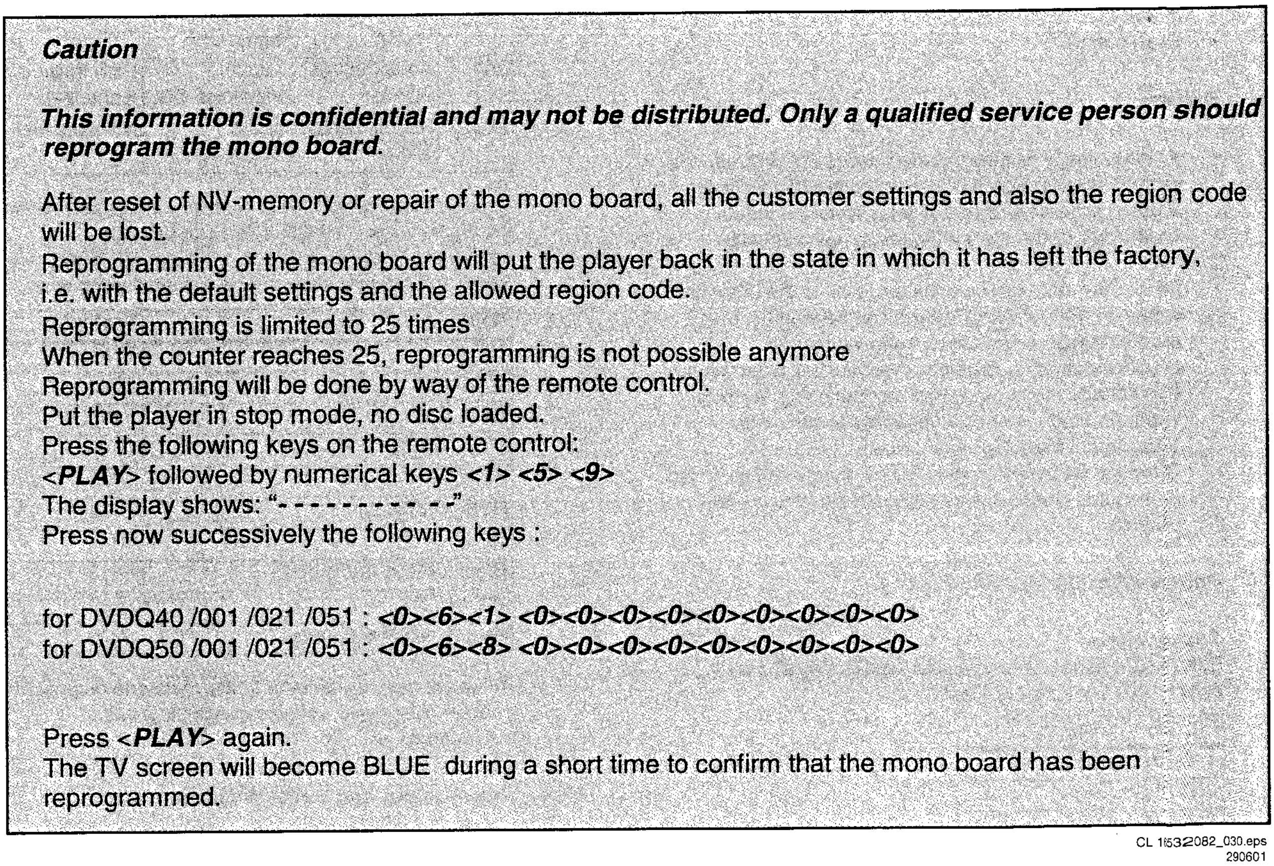
Figure 5-35

Error log / bits table	**Read ERROR LOG in player script**	**Read ERROR BITS in player script**
Basic engine errors	Value:	Value:
Command to the Basic Engine not allowed in this state or unknown command	150101	8
Parameter(s) from the command to the Basic Engine is not valid	150102	7
Sledge could not be moved to the inner home position	150103	6
Focus failure	150104	5
Turntable motor speed could not be reached within timeout	150105	4
Radial servo could not get on track on the disc	150106	3
PLL could not lock in the accessing or tracking state	150107	2
Subcode or sector information could not be read	150108	1
requested subcode could not be found	150109	16
Tray could not be closed or opened completely	15010A	15
TOC could not be read within timeout	15010B	14
The requested seek on the disc could not be executed	15010C	13
A requested lead-in is not on the disc	15010D	12
A non existing burst cutting area is requested	15010E	11
S2b communication error	1501F0	10
S2b communication error	1501F1	9
S2b communication error	1501F3	24
S2b communication error	1501F4	23
S2b communication error	1501F5	22
Digital PWB errors		
Communication error with the Sti 5505	90000	32
Communication error with the Sti 5505	90001	31
Disply processor errors		
Communication error with the display processor	190000	40

5.6.1 Servicing DVD Loader

The DVD Loader / mechanism, VAL6011, has to be exchanged completely in case of failure. A new mechanism can be ordered with codenumber 9305 023 61101.

5.6.2 Reprogramming Of New Mono Boards.



Caution

This information is confidential and may not be distributed. Only a qualified service person should reprogram the mono board.

After reset of NV-memory or repair of the mono board, all the customer settings and also the region code will be lost.
Reprogramming of the mono board will put the player back in the state in which it has left the factory, i.e. with the default settings and the allowed region code.
Reprogramming is limited to 25 times
When the counter reaches 25, reprogramming is not possible anymore
Reprogramming will be done by way of the remote control.
Put the player in stop mode, no disc loaded.
Press the following keys on the remote control:
<***PLAY***> followed by numerical keys ***<1> <5> <9>***
The display shows: "- - - - - - - - - - -"
Press now successively the following keys :

for DVDQ40 /001 /021 /051 : ***<0><6><1> <0><0><0><0><0><0><0><0><0>***
for DVDQ50 /001 /021 /051 : ***<0><6><8> <0><0><0><0><0><0><0><0><0>***

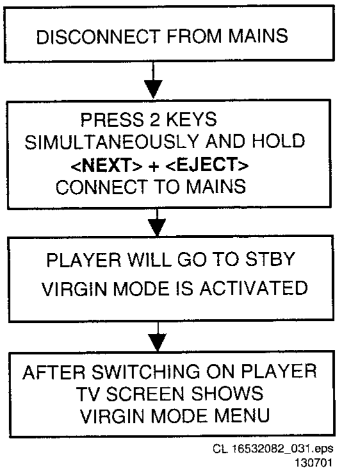
Press <***PLAY***> again.
The TV screen will become BLUE during a short time to confirm that the mono board has been reprogrammed.

CL 16532082_030.eps
290601

Figure 5-36

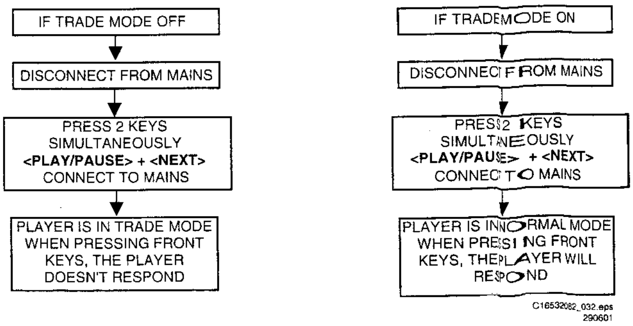
5.6.3 Reset Of Virgin Mode

After the player has been powered up for test by the dealer, it would have gone through the Virgin Mode. It is possible to reset the settings made during that mode before the delivery of player to the customer. This can be done as shown in the following diagram:


DISCONNECT FROM MAINS
PRESS 2 KEYS SIMULTANEOUSLY AND HOLD <NEXT> + <EJECT> CONNECT TO MAINS
PLAYER WILL GO TO STBY VIRGIN MODE IS ACTIVATED
AFTER SWITCHING ON PLAYER TV SCREEN SHOWS VIRGIN MODE MENU

CL 16532082_031.eps
130701

Figure 5-37



TRADE MODE

When the player is in Trade Mode, the player cannot be controlled by means of the front key buttons, but only by means of the remote control.

IF TRADE MODE OFF
DISCONNECT FROM MAINS
PRESS 2 KEYS SIMULTANEOUSLY <PLAY/PAUSE> + <NEXT> CONNECT TO MAINS
PLAYER IS IN TRADE MODE WHEN PRESSING FRONT KEYS, THE PLAYER DOESN'T RESPOND
IF TRADE MODE ON
DISCONNECT FROM MAINS
PRESS 2 KEYS SIMULTANEOUSLY <PLAY/PAUSE> + <NEXT> CONNECT TO MAINS
PLAYER IS IN NORMAL MODE WHEN PRESSING FRONT KEYS, THE PLAYER WILL RESPOND

C16532082_032.eps
290601

Figure 5-38

5.7 Test Instruction Audio/Video Board

These test instructions can be used for all versions of the A/V board which has the following outputs:

- Audio L/R
- 5.1 Audio output
- Subwoofer output
- Optical / Coaxial digital output
- CVBS
- Y/G_vid,U/B_vid,V/R_vid output
- S-video
- Scart output

5.7.1 General

- All the waveforms measurement carried out in these test instruction will be base on the testpoint indicated in the A/V board schematic diagram in the Service manual.
- Impedance of the measuring-equipment should be > 1MΩ
- Most of the tests can be done using either the Diagnostic software " Player script" which can be found in the chapter "Diagnostic Software description and troubleshooting" or the Menu interface using the Service PC with a terminal emulation program (e.g. Window Hyperterminal) where it is possible to control the execution of the Diagnostic Nuclei
- Setup for the measurement will be done in set level with all modules connected as shown in the Wiring Block diagram.

5.7.2 General Start-Up Measurement

Supply check:
Before starting the measurement,ensure that all power supply are connected to the A/V board.

Pin nbr	Supply
1101-9	-5V (-Vcc)
1101-10	+5V
1101-11	+5V

The supply currents can be measured using a Tektronics AM503B current probe or equivalent.

Supply	Power consumption (AVG)
+5VA	+5V 3% I = 200mA
+5Vvid	+5V 3% I = 200mA
-5V	-5V 3% I = 200mA

Clock Check
Ensure the present of the clock to the DAC

Clock Name	Testpoint	Frequency
PCM_CLK	TP10	11.2896MHz 0.02% tolerance

Audio mute check
Measure the Audio mute voltage input at pin 12 of connector 1101

Status	Value
AudioMuteOn	4.7V 10%
AudioMuteOff	-8V 10%

To toggle between ON and OFF,use the following commands:

Ref.#	Command Name	Remarks
19a	AudioMuteOn	Audio Mute On
19b	AudioMuteOff	Audio Mute Off

5.7.3 Audio DAC And Amplifier

Ensure that the Audio mute signal is OFF
To check the DAC and buffer amplifier,send the following commands:

Ref.#	Command Name	Remarks	Audio output
21a	AudioSineOn	Audio Sine signal ON	Sine,1Khz on stereo
----	Press stop button	Audio Sine signal OFF	No waveform
20a	AudioPinkNoiseOn	Audio Pinknoise ON	Pink Noise on 6 channels
20b	AudioPinkNoiseOff	Audio Pinknoise OFF	No waveform

The audio signal (sine or pink noise) will also be present on the digital output (SPDIF).This can be checked by connecting digital signal to an amplifier with digital input. Check the I2S and audio signal at the following testpoints:

Name	Testpoint
LRCLK	TP8
SCLK	TP9
PCM_CLK	P10
PCM_OUT0	TP7
PCM_OUT1	TP27
PCM_OUT2	TP28
SPDIF	TP11
Front L/R out-Audio cinch	TP13
H/P L/R out	TP20
Analog out -Audio cinch	TP25

All waveforms can be refer to the waveform diagram in the chapter "Diagnostic software description and troubleshooting".

5.7.4 Video Output And Buffer Amplifier

Check DC output-level at all video cinch output : 1.0V DC ± 10%
Generate a color bar using the following software commands:

Ref.#	Command Name	Remarks
23a	VideoColDencOn	Colour DENC ON
61a	VideoColOutRGB	RGB Colourbar
61b	VideoColOutYUV	YUV Colourbar
23b	VideoColDencOff	Colourbar DENC OFF

Check the video outputs at the following testpoints:

Name	Testpoint
B_VID	TP1
G_VID	TP2
R_VID	TP3
CVBS out	TP14
S-Video-C out	TP15
S-Video-Y out	TP16
Y out	TP17
U out	TP18
V out	TP19

All waveforms can be refer to the waveform diagram in the chapter "Diagnostic Software description and troubleshooting".

5.7.5 Play And 16/9 Detection

Check DC voltage at S-Video-chroma output (pin 4) with a 6K8 ohm load and Scart connector (pin 8) and change the 0/6/12 input (1101-8) using the following commands:

Ref.#	Command Name	Remarks	Chroma output
25a	VideoScartLo	Sends out 0V 0.5V	<0.1V
25b	VideoScartMi	Sends out 6V 10%	2.0V 10% with load
			5.0V 10% without load
25c	VideoScartHi	Sends out 12V 10%	<0.1V

5.7.6 Kill Circuit

To check the functionality of the Kill circuitry,the audio outputs has to be present by the following command:

Ref.#	Command Name	Remarks	Audio output
21a	AudioPinkNoiseOn	Audio Pinknoise ON	Pink Noise on 6 channels

Check the audio outputs at the audio cinch of the A/V board : Pink Noise
Activate the Kill circuit by using the following command:

Ref.#	Command Name	Remarks
19a	AudioMuteOn	Audio Mute On

Check the audio outputs at the audio cinch of the A/V board : No waveform
Switch off the kill circuit by using the following command:

Ref.#	Command Name	Remarks
19b	AudioMuteOff	Audio Mute Off

Check the audio outputs at the audio cinch of the A/V board : Pink Noise

5.8 Test Instructions Display Board

5.8.1 Introduction

These test instructions are written for all versions of the display PCBAS.
The contents of the PCB can be split up into next blocks:

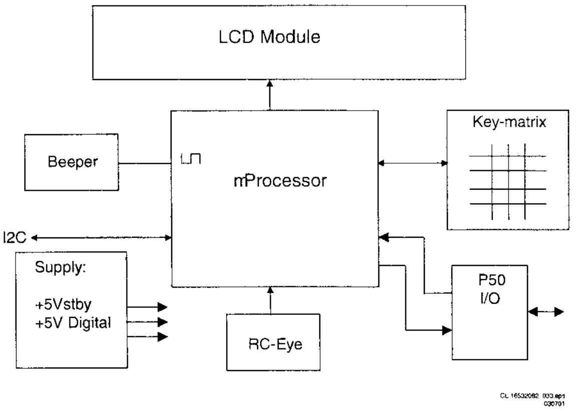


Figure 5-39

5.8.2 Functionality Description:

The essential component of the display PCB is the µP (slave). This slave works on an 8MHz resonator and has a reset circuit that is triggered by the +5Vstby. After the reset pulse, the standby control line will release the reset of the host µP. This host µP will then initialise the slave. In addition, when going to stand-by, the slave will put the host µP in reset. When the slave receives the right IR or key code to leave the standby mode, the reset of the host µP will be released.
Other slave functions is:

- Has inputs for RC (RC5 and RC6) and P50 (P50 controller is built in).

5.8.3 General

- Oscilloscope measurements have been carried out using a Philips PM3392A.
- Impedance of measuring-equipment should be > 1MΩ.
- To do correct measurements we recommend to use supply 3122 427 22930.

5.8.4 Reset

Check next reset timing with an oscilloscope at pin 4 of the microprocessor.

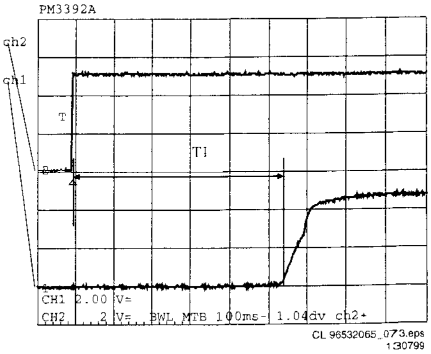


Figure 5-40

Timing: 400msec < T1 > 700msec.
CH1: +5Vstby voltage at power on.
CH2: Voltage at pin 4.

5.8.5 Key-matrix

Connect a extra 10kΩ pull-up to pin 43 en 44 of the µP and check next matrix scanning at these pins.

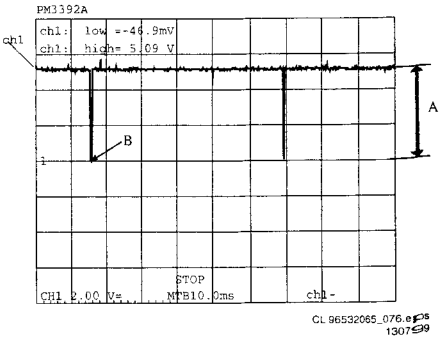


Figure 5-41

Level A: 5.0V +/-7%
Level B: 0V +/-200mV
Check matrix scanning from pin 33 until 44 of the µP.
The results should be the same as the diagram above.

5.8.6 I.R. Receiver

Check at pin 29 of the µP if this line switches from low (< 0.3V) to high (> 4.5V), while pressing a key on a Philips RC5 or RC6 remote control.

5.8.7 Standby LED

In operating mode:
Check the voltage at the base of transistor 7109:
4V +/- 10% (LED is OFF)

In standby mode:
Voltage at anode of LED 6200 is 3V3 +/- 15%
Check to ensure that the LED is ON

5.8.8 P50 Interface

P50 is a bi-directional serial interface, which is used for communication between video equipment. For European sets, this communication goes via pin 10 of the scart-bus. In other regions, it can be a cinch bus at the back of the set.

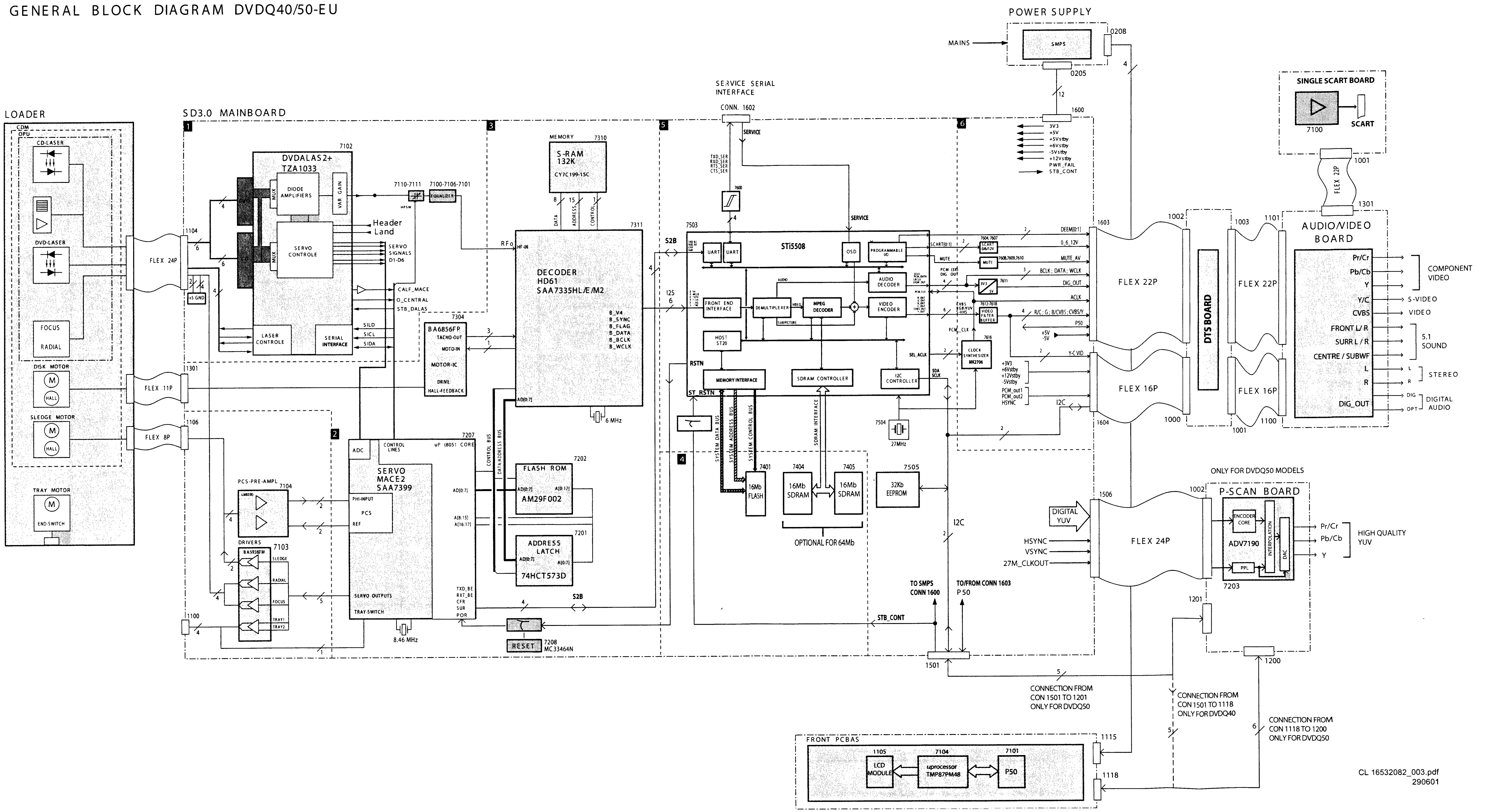
1. Keep the µP in reset by short-circuiting emitter and collector of transistor 7108, via resistor 3100 and 3104 transistor 7101 is switched on.
2. Check the voltage at the P50 output connector 1118-5: < 200mV.

When the reset is released the µP output-pin becomes low and transistor 7101 is switched off.

1. Check the voltage at the P50 output connector 1118-5: 4V9 +/-5%.
2. Check also the µP P50 input (µP pin 20): 5V +/-5%.
3. Connect the P50 line (connector 1118-5) to ground.
4. Check again the µP P50 input (µP pin 20): <0V3.

6. Block and Wiring Diagram.

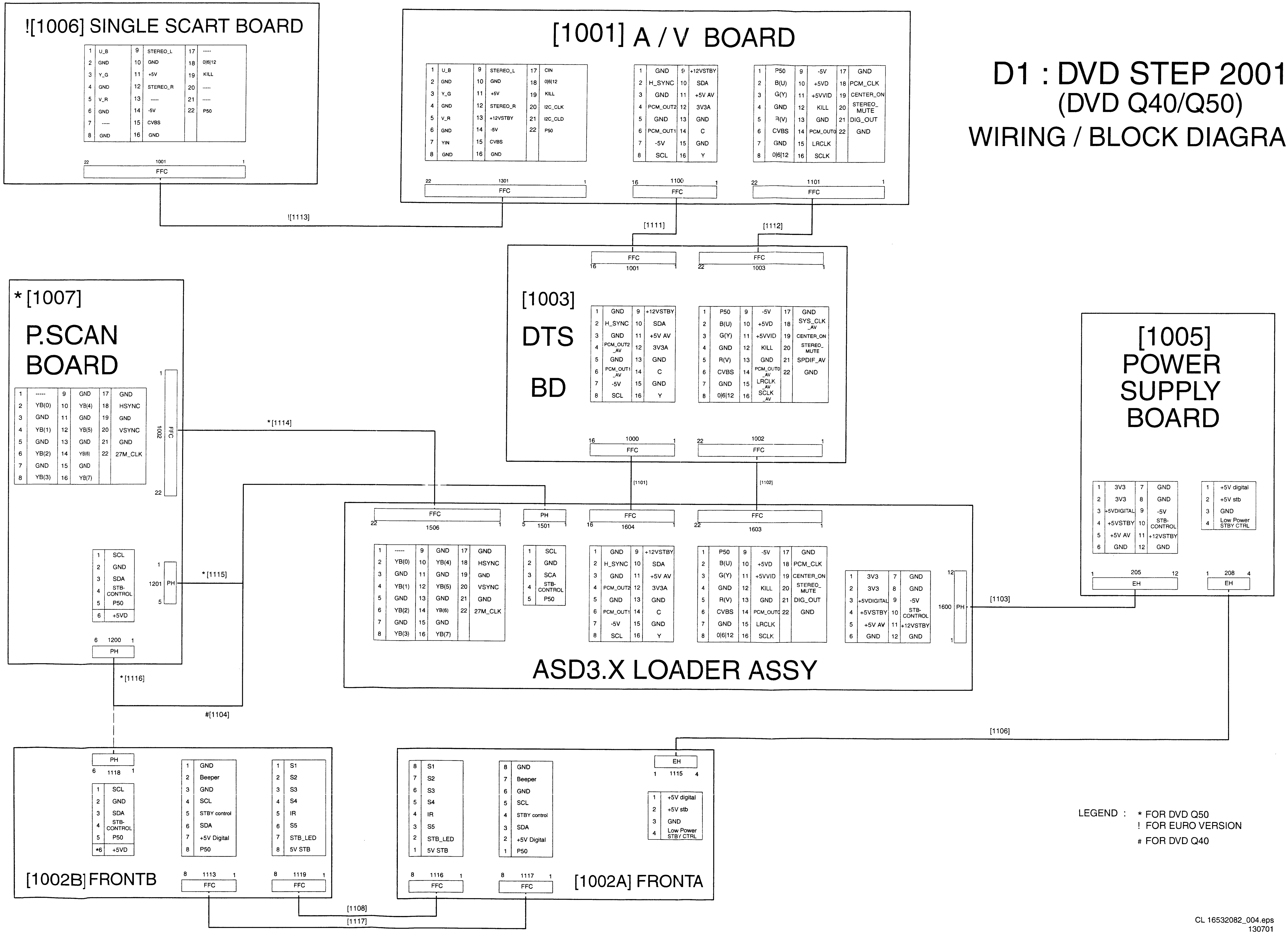
Blockdiagram DVD Q40-50 /0X1


GENERAL BLOCK DIAGRAM DVDQ40/50-EU
LOADER
CDM
OPU
CD-LASER
DVD-LASER
FOCUS
RADIAL
DISK MOTOR
SLEDGE MOTOR
TRAY MOTOR
END-SWITCH
HALL
SD3.0 MAINBOARD
FLEX 24P
FLEX 11P
FLEX 8P
1104
1301
1106
1100
+5 GND
7102
DVDALAS2+
TZA1033
DIODE AMPLIFIERS
MUX
VAR GAIN
SERVO CONTROLE
LASER CONTROLE
SERIAL INTERFACE
Header
Land
SERVO SIGNALS
D1-D6
CALF_MACE
O_CENTRAL
STB_DALAS
SILD
SICL
SIDA
7110-7111
7100-7106-7101
EQUALIZER
7304
BA6856FP
TACHO-OUT
MOTO-IN
MOTOR-IC
DRIVE
HALL-FEEDBACK
PCS-PRE-AMPL
7104
DRIVERS
7103
BA5938FM
SLEDGE
RADIAL
FOCUS
TRAY1
TRAY2
MEMORY
7310
S-RAM
132K
CY7C199-15C
DATA
ADDRESS
CONTROL
7311
RFo
HF-IN
DECODER
HD61
SAA7335HL/E/M2
B_V4
B_SYNC
B_FLAG
B_DATA
B_BCLK
B_WCLK
AD[0:7]
6 MHz
7207
ADC
CONTROL LINES
uP (8051 CORE)
SERVO
MACE2
SAA7399
PHI-INPUT
PCS
REF
SERVO OUTPUTS
TRAY-SWITCH
8.46 MHz
TXD_BE
RXT_BE
CFR
SUR
POR
CONTROL BUS
DATA/ADDRESS BUS
7202
FLASH ROM
AM29F002
7201
ADDRESS LATCH
74HCT573D
RESET
7208
MC33464N
S2B
I2S
SERVICE SERIAL INTERFACE
CONN. 1602
SERVICE
TXD_SER
RXD_SER
RTS_SER
CTS_SER
7600
7503
STi5508
UART
OSD
PROGRAMMABLE I/O
AUDIO DECODER
VIDEO ENCODER
FRONT END INTERFACE
DEMULTIPLEXER
MPEG DECODER
HOST ST20
MEMORY INTERFACE
SDRAM CONTROLLER
I2C CONTROLLER
RSTN
ST_RSTN
SYSTEM DATA BUS
SYSTEM ADDRESS BUS
SYSTEM CONTROL BUS
SDRAM INTERFACE
7401
16Mb FLASH
7404
16Mb SDRAM
7405
16Mb SDRAM
OPTIONAL FOR 64Mb
7505
32Kb EEPROM
7504
27MHz
SEL_ACLK
SDA
SCLK
I2C
TO SMPS CONN 1600
TO/FROM CONN 1603
P50
STB_CONT
1501
POWER SUPPLY
MAINS
SMPS
0208
0205
1600
3V3
+5V
+5Vstby
+6Vstby
-5Vstby
+12Vstby
PWR_FAIL
STB_CONT
SCART[0:1]
MUTE
PCM
DIG_OUT
CVBS
7604, 7607
SCART SW/12V
MUTE
7608, 7609, 7610
7611
7612-7618
VIDEO FILTER BUFFER
7616
CLOCK SYNTHESIZER MK2706
PCM_CLK
DEEM[0:1]
0_6_12V
MUTE_AV
BCLK ; DATA ; WCLK
DIG_OUT
ACLK
R/C ; G ; B/CVBS ; CVBS/Y
P50
+5V
-5V
Y-C VID
+3V3
+6Vstby
+12Vstby
-5Vstby
PCM_out1
PCM_out2
HSYNC
I2C
1603
1604
FLEX 22P
FLEX 16P
1002
1000
DTS BOARD
1003
1101
1001
1100
SINGLE SCART BOARD
7100
SCART
FLEX 22P
1301
AUDIO/VIDEO BOARD
Pr/Cr
Pb/Cb
Y
Y/C
CVBS
FRONT L/R
SURR L/R
CENTRE / SUBWF
L
R
DIG_OUT
COMPONENT VIDEO
S-VIDEO
VIDEO
5.1 SOUND
STEREO
DIGITAL AUDIO
OPT
ONLY FOR DVDQ50 MODELS
P-SCAN BOARD
1506
DIGITAL YUV
HSYNC
VSYNC
27M_CLKOUT
FLEX 24P
ENCODER CORE
ADV7190
PPL
INTERPOLATION
DAC
7203
Pr/Cr
Pb/Cb
Y
HIGH QUALITY YUV
1201
1200
CONNECTION FROM CON 1501 TO 1201 ONLY FOR DVDQ50
CONNECTION FROM CON 1501 TO 1118 ONLY FOR DVDQ40
CONNECTION FROM CON 1118 TO 1200 ONLY FOR DVDQ50
FRONT PCBAS
1105
LCD MODULE
7104
uprocessor TMP87PM48
7101
P50
1115
1118

CL 16532082_003.pdf
290601

Wiring Diagram

D1 : DVD STEP 2001
(DVD Q40/Q50)
WIRING / BLOCK DIAGRAM


![1006] SINGLE SCART BOARD
22 1001 1
FFC
![1113]
[1001] A / V BOARD
22 1301 1
FFC
16 1100 1
FFC
22 1101 1
FFC
[1111]
[1112]
[1003]
DTS
BD
FFC 16 1001 1
FFC 22 1003 1
16 1000 1 FFC
22 1002 1 FFC
[1101]
[1102]
* [1007]
P.SCAN
BOARD
1 1002 FFC 22
* [1114]
1 1201 PH 5
* [1115]
6 1200 1 PH
* [1116]
#[1104]
FFC 22 1506 1
PH 5 1501 1
FFC 16 1604 1
FFC 22 1603 1
12 1600 PH 1
ASD3.X LOADER ASSY
[1103]
[1005]
POWER
SUPPLY
BOARD
1 205 12 EH
1 208 4 EH
[1106]
PH 6 1118 1
8 1113 1 FFC
8 1119 1 FFC
[1002B] FRONTB
EH 1 1115 4
8 1116 1 FFC
8 1117 1 FFC
[1002A] FRONTA
[1108]
[1117]

[1006] SINGLE SCART BOARD (1001)

1	U_B	9	STEREO_L	17	-----
2	GND	10	GND	18	0|6|12
3	Y_G	11	+5V	19	KILL
4	GND	12	STEREO_R	20	-----
5	V_R	13	-----	21	-----
6	GND	14	-5V	22	P50
7	-----	15	CVBS		
8	GND	16	GND		

[1001] A / V BOARD (1301)

1	U_B	9	STEREO_L	17	CIN
2	GND	10	GND	18	0|6|12
3	Y_G	11	+5V	19	KILL
4	GND	12	STEREO_R	20	I2C_CLK
5	V_R	13	+12VSTBY	21	I2C_CLD
6	GND	14	-5V	22	P50
7	YIN	15	CVBS		
8	GND	16	GND		

[1001] A / V BOARD (1100)

1	GND	9	+12VSTBY
2	H_SYNC	10	SDA
3	GND	11	+5V AV
4	PCM_OUT2	12	3V3A
5	GND	13	GND
6	PCM_OUT1	14	C
7	-5V	15	GND
8	SCL	16	Y

[1001] A / V BOARD (1101)

1	P50	9	-5V	17	GND
2	B(U)	10	+5VD	18	PCM_CLK
3	G(Y)	11	+5VVID	19	CENTER_ON
4	GND	12	KILL	20	STEREO_ MUTE
5	R(V)	13	GND	21	DIG_OUT
6	CVBS	14	PCM_OUT0	22	GND
7	GND	15	LRCLK		
8	0|6|12	16	SCLK		

[1003] DTS BD (1001 / 1000)

1	GND	9	+12VSTBY
2	H_SYNC	10	SDA
3	GND	11	+5V AV
4	PCM_OUT2 _AV	12	3V3A
5	GND	13	GND
6	PCM_OUT1 _AV	14	C
7	-5V	15	GND
8	SCL	16	Y

[1003] DTS BD (1003 / 1002)

1	P50	9	-5V	17	GND
2	B(U)	10	+5VD	18	SYS_CLK _AV
3	G(Y)	11	+5VVID	19	CENTER_ON
4	GND	12	KILL	20	STEREO_ MUTE
5	R(V)	13	GND	21	SPDIF_AV
6	CVBS	14	PCM_OUT0 _AV	22	GND
7	GND	15	LRCLK _AV		
8	0|6|12	16	SCLK _AV		

*[1007] P.SCAN BOARD (1002)

1	-----	9	GND	17	GND
2	YB(0)	10	YB(4)	18	HSYNC
3	GND	11	GND	19	GND
4	YB(1)	12	YB(5)	20	VSYNC
5	GND	13	GND	21	GND
6	YB(2)	14	YB(6)	22	27M_CLK
7	GND	15	GND		
8	YB(3)	16	YB(7)		

*[1007] P.SCAN BOARD (1201 / 1200)

1	SCL
2	GND
3	SDA
4	STB-CONTROL
5	P50
6	+5VD

ASD3.X LOADER ASSY (1506)

1	-----	9	GND	17	GND
2	YB(0)	10	YB(4)	18	HSYNC
3	GND	11	GND	19	GND
4	YB(1)	12	YB(5)	20	VSYNC
5	GND	13	GND	21	GND
6	YB(2)	14	YB(6)	22	27M_CLK
7	GND	15	GND		
8	YB(3)	16	YB(7)		

ASD3.X LOADER ASSY (1501)

1	SCL
2	GND
3	SCA
4	STB-CONTROL
5	P50

ASD3.X LOADER ASSY (1604)

1	GND	9	+12VSTBY
2	H_SYNC	10	SDA
3	GND	11	+5V AV
4	PCM_OUT2	12	3V3A
5	GND	13	GND
6	PCM_OUT1	14	C
7	-5V	15	GND
8	SCL	16	Y

ASD3.X LOADER ASSY (1603)

1	P50	9	-5V	17	GND
2	B(U)	10	+5VD	18	PCM_CLK
3	G(Y)	11	+5VVID	19	CENTER_ON
4	GND	12	KILL	20	STEREO_ MUTE
5	R(V)	13	GND	21	DIG_OUT
6	CVBS	14	PCM_OUT0	22	GND
7	GND	15	LRCLK		
8	0|6|12	16	SCLK		

ASD3.X LOADER ASSY (1600)

1	3V3	7	GND
2	3V3	8	GND
3	+5VDIGITAL	9	-5V
4	+5VSTBY	10	STB-CONTROL
5	+5V AV	11	+12VSTBY
6	GND	12	GND

[1005] POWER SUPPLY BOARD (205)

1	3V3	7	GND
2	3V3	8	GND
3	+5VDIGITAL	9	-5V
4	+5VSTBY	10	STB-CONTROL
5	+5V AV	11	+12VSTBY
6	GND	12	GND

[1005] POWER SUPPLY BOARD (208)

1	+5V digital
2	+5V stb
3	GND
4	Low Power STBY CTRL

[1002B] FRONTB (1118)

1	SCL
2	GND
3	SDA
4	STB-CONTROL
5	P50
*6	+5VD

[1002B] FRONTB (1113)

1	GND
2	Beeper
3	GND
4	SCL
5	STBY control
6	SDA
7	+5V Digital
8	P50

[1002B] FRONTB (1119)

1	S1
2	S2
3	S3
4	S4
5	IR
6	S5
7	STB_LED
8	5V STB

[1002A] FRONTA (1116)

8	S1
7	S2
6	S3
5	S4
4	IR
3	S5
2	STB_LED
1	5V STB

[1002A] FRONTA (1117)

8	GND
7	Beeper
6	GND
5	SCL
4	STBY control
3	SDA
2	+5V Digital
1	P50

[1002A] FRONTA (1115)

1	+5V digital
2	+5V stb
3	GND
4	Low Power STBY CTRL

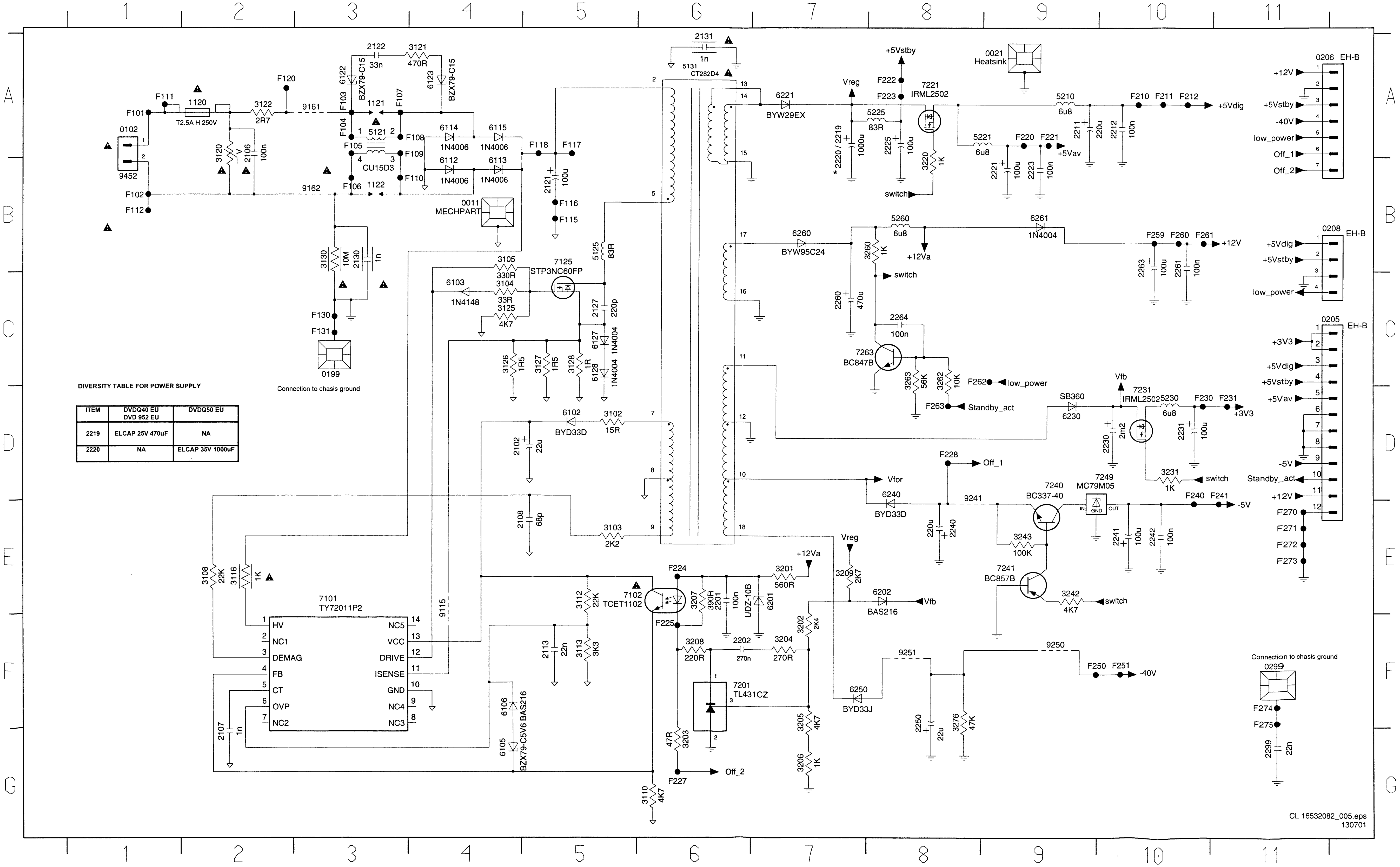
LEGEND :
- * FOR DVD Q50
- ! FOR EURO VERSION
- # FOR DVD Q40

CL 16532082_004.eps
130701

7. Electrical Diagrams And Print-Layouts

Power Supply Unit STEP 2001 EURO

0011	B4	0299	F11	2109	B5	2131	A6	2221	B9	2242	E10	2264	C8	3106	A3	3120	A2	3201	E7	3209	E7	3251	F9	3264	B10	5131	A6	5241	D8	6112	B4	6201	E7	6260	B7	7201	F6	7251	G9	9162	B3
0021	A9	1120	A2	2110	G5	2201	E6	2222	A7	2250	F8	2265	C9	3108	E2	3121	A4	3202	F7	3220	B8	3252	G9	3265	C9	5161	A3	5250	F8	6113	B4	6202	E8	6261	B9	7204	C9	7261	B9	9222	C3
0101	B1	1121	A3	2111	A5	2202	F6	2223	B9	2251	F10	2272	F10	3110	G6	3122	A2	3203	G6	3230	B8	3253	F9	3266	C10	5162	B3	5260	B8	6114	A4	6220	A7	6262	C8	7221	A8	7262	C8	9241	E8
0102	A1	1122	B3	2113	F5	2203	F7	2225	A8	2252	F7	2299	G11	3111	A5	3125	C4	3204	F7	3231	D10	3254	G9	3267	B8	5210	A9	6102	D5	6115	A4	6221	A7	6270	F10	7231	D10	7263	C8	9250	F9
0199	C3	2102	D4	2121	B5	2211	A9	2230	D10	2260	C7	3102	D5	3112	E5	3126	C4	3205	G7	3241	E9	3260	B8	3271	F10	5220	A8	6103	C4	6122	A3	6230	D9	6271	F10	7240	D9	7264	B8	9251	F8
0205	C11	2106	A2	2122	A3	2212	A10	2231	D10	2261	B10	3103	E5	3113	F5	3127	C5	3206	G7	3242	E9	3261	C9	3276	F8	5221	A8	6105	G4	6123	A4	6240	D8	7101	E3	7241	E9	9115	E4	9261	B9
0206	A11	2107	G2	2127	C5	2219	A7	2240	E8	2262	B7	3104	C4	3115	E4	3128	C5	3207	E6	3243	E9	3262	C8	5121	A3	5225	A8	6106	F4	6127	C5	6241	E8	7102	E6	7249	D10	9122	A2		
0208	B11	2108	E5	2130	B3	2220	A7	2241	E10	2263	B10	3105	B4	3116	E2	3130	B3	3208	F6	3250	F8	3263	C8	5125	B5	5230	D10	6111	B5	6128	C5	6250	F7	7125	B5	7250	F9	9161	A3		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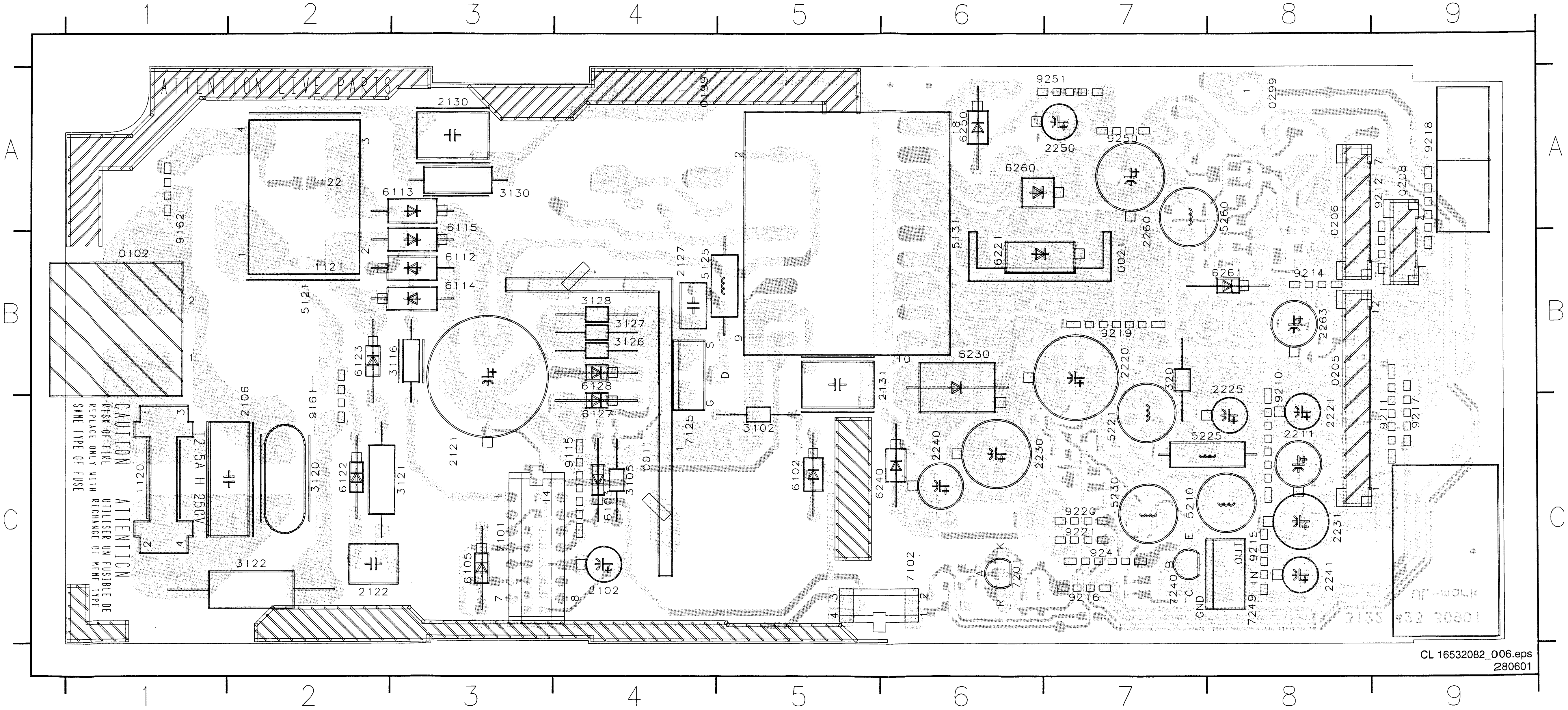
9
10
11
A
B
C
D
E
F
G
F101
F111
1120
T2.5A H 250V
3122
2R7
F120
9161
0102
9452
3120
2106
100n
F102
F112
9162
2122
33n
3121
470R
6122
BZX79-C15
6123
BZX79-C15
F103
F107
1121
F104
5121
F105
F106
1122
CU15D3
F108
F109
F110
6114
1N4006
6115
1N4006
6112
1N4006
6113
1N4006
F118
F117
2121
100u
F116
F115
0011
MECHPART
3130
10M
2130
1n
F130
F131
0199
Connection to chasis ground
3105
330R
7125
STP3NC60FP
6103
1N4148
3104
33R
3125
4K7
5125
83R
2127
220p
6127
1N4004
6128
1N4004
3126
1R5
3127
1R5
3128
1R
6102
BYD33D
3102
15R
2102
22u
2108
68p
3103
2K2
2131
1n
5131
CT282D4
3108
22K
3116
1K
7101
TY72011P2
HV
NC1
DEMAG
FB
CT
OVP
NC2
NC5
VCC
DRIVE
ISENSE
GND
NC4
NC3
9115
2107
1n
3112
22K
3113
3K3
2113
22n
6106
6105
BZX79-C5V6 BAS216
7102
TCET1102
3110
4K7
F224
F225
3207
390R
2201
100n
UDZ-10B
6201
3201
560R
+12Va
3208
220R
2202
270n
3204
270R
3202
2K4
7201
TL431CZ
3203
47R
F227
Off_2
3205
4K7
3206
1K
+5Vstby
Vreg
F222
F223
7221
IRML2502
6221
BYW29EX
5225
83R
2220 / 2219
1000u
2225
100u
3220
1K
switch
0021
Heatsink
5210
6u8
F210
F211
F212
+5Vdig
2211
220u
2212
100n
5221
6u8
F220
F221
+5Vav
2221
100u
2223
100n
6260
BYW95C24
5260
6u8
+12Va
6261
1N4004
F259
F260
F261
+12V
3260
1K
2263
100u
2261
100n
2260
470u
2264
100n
7263
BC847B
3263
56K
3262
10K
F262
low_power
F263
Standby_act
Vfb
SB360
6230
7231
IRML2502
5230
6u8
F230
F231
+3V3
2230
2m2
2231
100u
3231
1K
F228
Off_1
Vfor
6240
BYD33D
9241
2240
220u
7240
BC337-40
7249
MC79M05
IN
GND
OUT
F240
F241
-5V
3243
100K
2241
100u
2242
100n
7241
BC857B
3242
4K7
Vreg
3209
2K7
6202
BAS216
Vfb
6250
BYD33J
9251
2250
22u
3276
47K
9250
F250
F251
-40V
0206 EH-B
+12V
+5Vstby
-40V
low_power
Off_1
Off_2
0208 EH-B
+5Vdig
+5Vstby
low_power
0205 EH-B
+3V3
+5Vdig
+5Vstby
+5Vav
-5V
Standby_act
+12V
F270
F271
F272
F273
Connection to chasis ground
0299
F274
F275
2299
22n
CL 16532082_005.eps
130701

DIVERSITY TABLE FOR POWER SUPPLY

ITEM	DVDQ40 EU DVD 952 EU	DVDQ50 EU
2219	ELCAP 25V 470uF	NA
2220	NA	ELCAP 35V 1000uF

Layout Power Supply STEP 2001 EURO (Top View)

0011	C4	0208	A9	2121	C3	2220	B7	2241	C8	2272	C7	3120	C2	3201	B7	5131	B6	5230	C7	6111	A4	6127	C4	6250	A6	7125	C4	9115	C4	9214	B8	9221	C7
0021	B7	0299	A8	2122	C2	2221	C8	2250	A7	3102	C5	3121	C3	3251	A7	5161	B2	5241	C7	6112	B3	6128	B4	6260	A6	7201	C6	9122	C2	9215	C8	9241	C7
0101	B1	1120	C1	2127	B4	2222	B6	2251	A8	3105	C4	3122	C2	3261	A8	5162	A1	5250	A7	6113	A3	6220	B6	6261	B8	7204	B8	9161	C2	9216	C7	9250	A7
0102	B1	2102	C4	2130	A3	2225	B8	2252	A6	3106	A2	3126	B4	3267	A8	5210	C7	5260	A8	6114	B3	6221	B6	6270	C6	7240	C7	9162	A1	9217	C9	9251	A7
0199	A4	2106	C2	2131	B6	2230	C6	2260	B7	3111	A4	3127	B4	3271	C9	5220	C7	6102	C5	6115	A3	6230	B6	6271	B9	7249	C8	9210	B8	9218	A9	9261	B8
0205	B8	2109	B4	2211	C8	2231	C8	2262	A7	3115	C4	3128	B4	5121	B2	5221	C7	6103	C4	6122	C2	6240	C5	7101	C3	7250	A7	9211	C9	9219	B7		
0206	A8	2111	A5	2219	C7	2240	C6	2263	B8	3116	B3	3130	A3	5125	B4	5225	C7	6105	C3	6123	B2	6241	C5	7102	C6	7261	B8	9212	A9	9220	C7		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A
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C
ATTENTION LIVE PARTS
CAUTION
RISK OF FIRE
REPLACE ONLY WITH
SAME TYPE OF FUSE
ATTENTION
UTILISER UN FUSIBLE DE
RECHANGE DE MEME TYPE
T2.5A H 250V
0102
1120
1121
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7101
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0011
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7102
5131
6220
6260
6221
2250
9251
9250
2260
5260
0021
6261
9214
9219
6230
2220
3201
5221
2225
2221
2211
9210
5225
2230
2240
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5210
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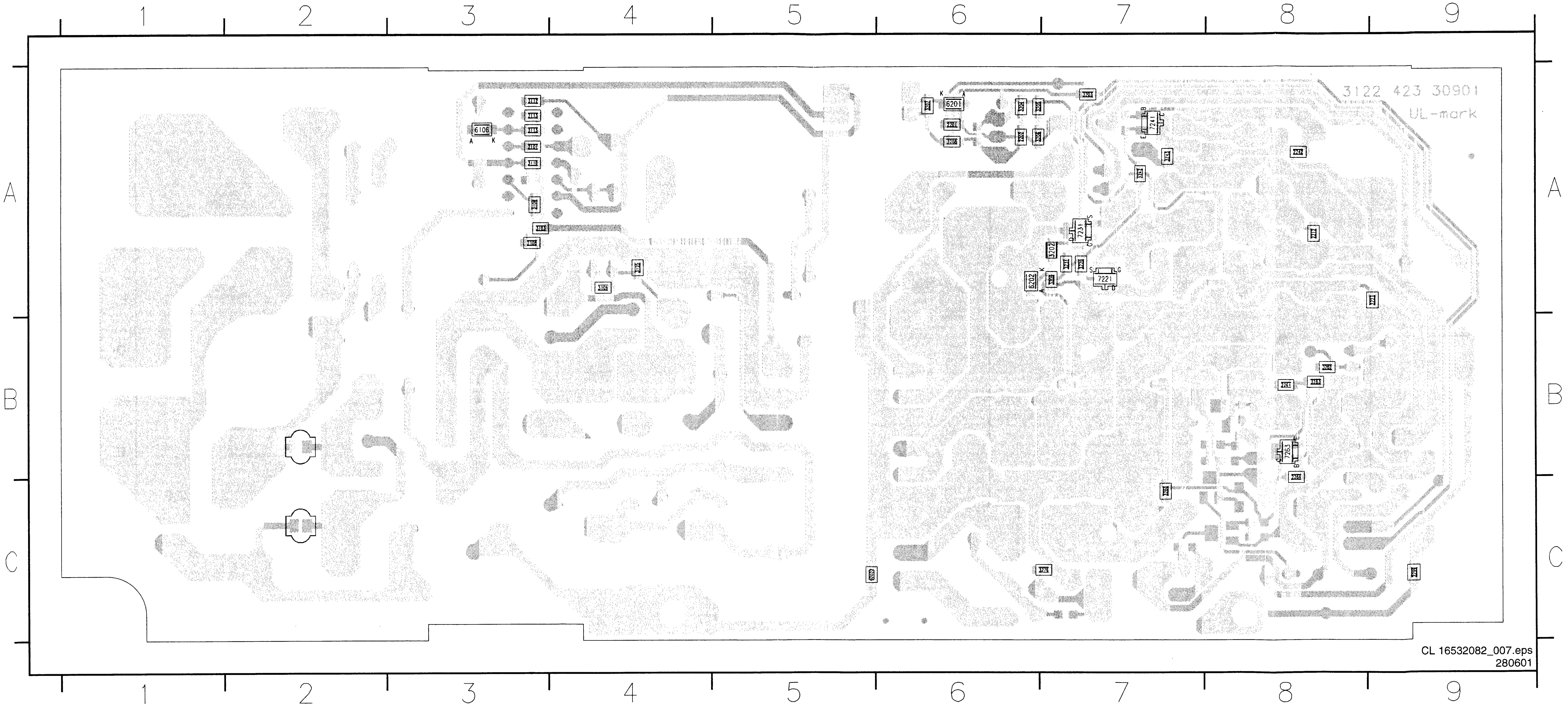
9221
9241
9216
7201
7240
7249
9215
2231
2241
2263
0205
0206
0208
9212
9218
0299
9211
9217
IN
OUT
GND
3122 453 30601

CL 16532082_006.eps
280601

Layout Power Supply Unit STEP 2001 EURO (Bottom View)

2107	A3	2201	A6	2223	A9	2265	B8	3108	A3	3125	A4	3205	A6	3209	A7	3241	A7	3252	C8	3262	B8	3266	B8	6202	A6	7241	A7	7264	B8
2108	A3	2202	A6	2242	A8	2299	C9	3110	A3	3202	A7	3206	A6	3220	A7	3242	A7	3253	C7	3263	B8	3276	C7	6262	C8	7251	C8	92022	C5
2110	A3	2203	A6	2261	B8	3103	A3	3112	A3	3203	A7	3207	A6	3230	A7	3243	A7	3254	C8	3264	B8	6106	A3	7221	A7	7262	C8		
2113	A3	2212	A8	2264	B8	3104	A4	3113	A3	3204	A6	3208	A6	3231	A7	3250	C7	3260	C7	3265	B8	6201	A6	7231	A7	7263	B8		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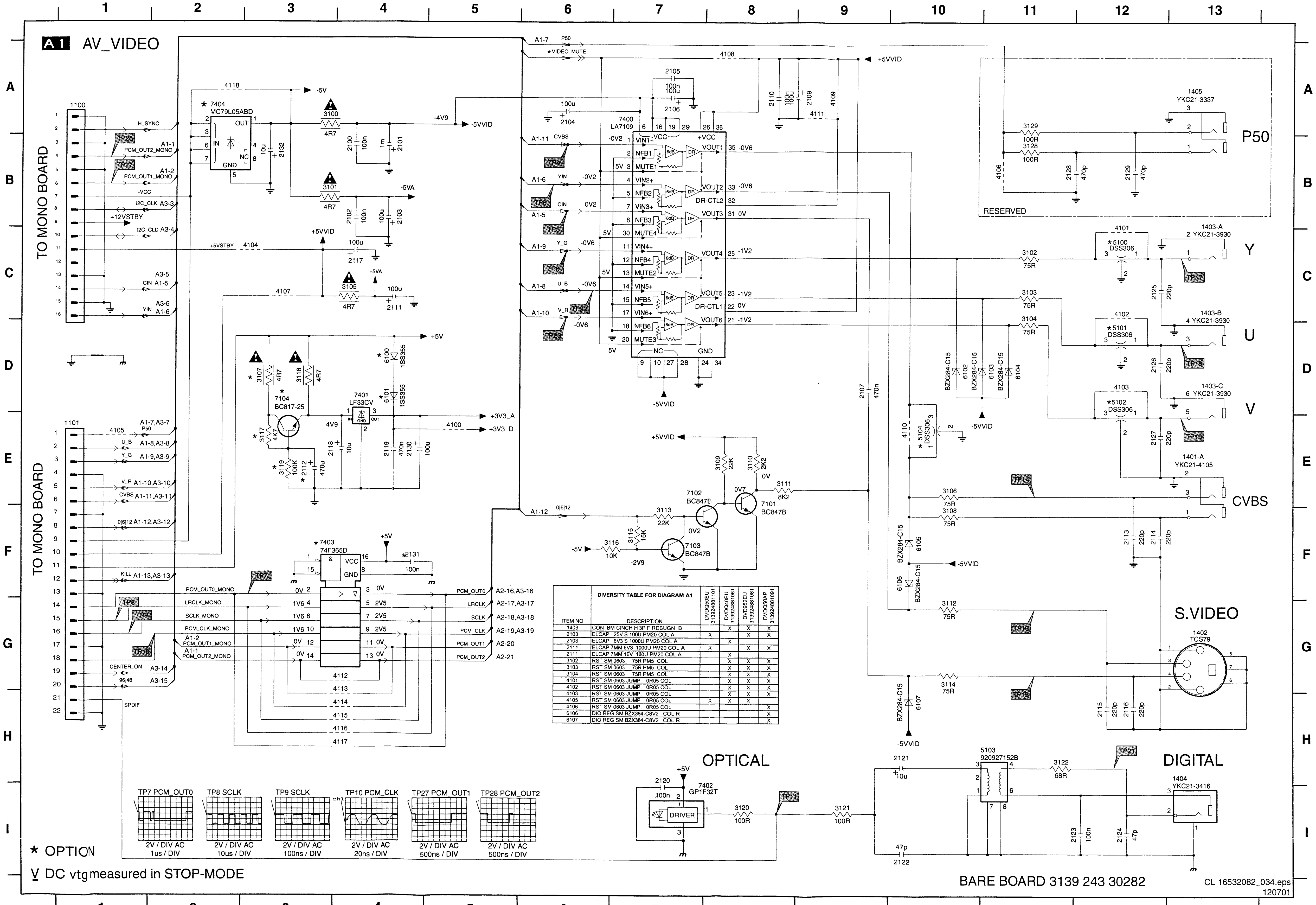
3122 423 30901
UL-mark
6106
A
K
6201
K
A
7241
7231
3202
6202
7221
7263

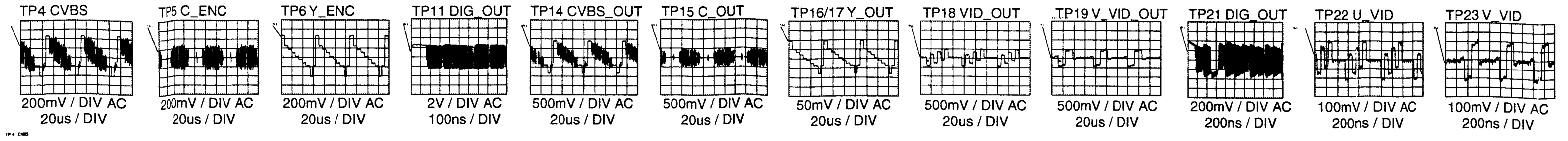
CL 16532082_007.eps
280601

A/V Board (Video)

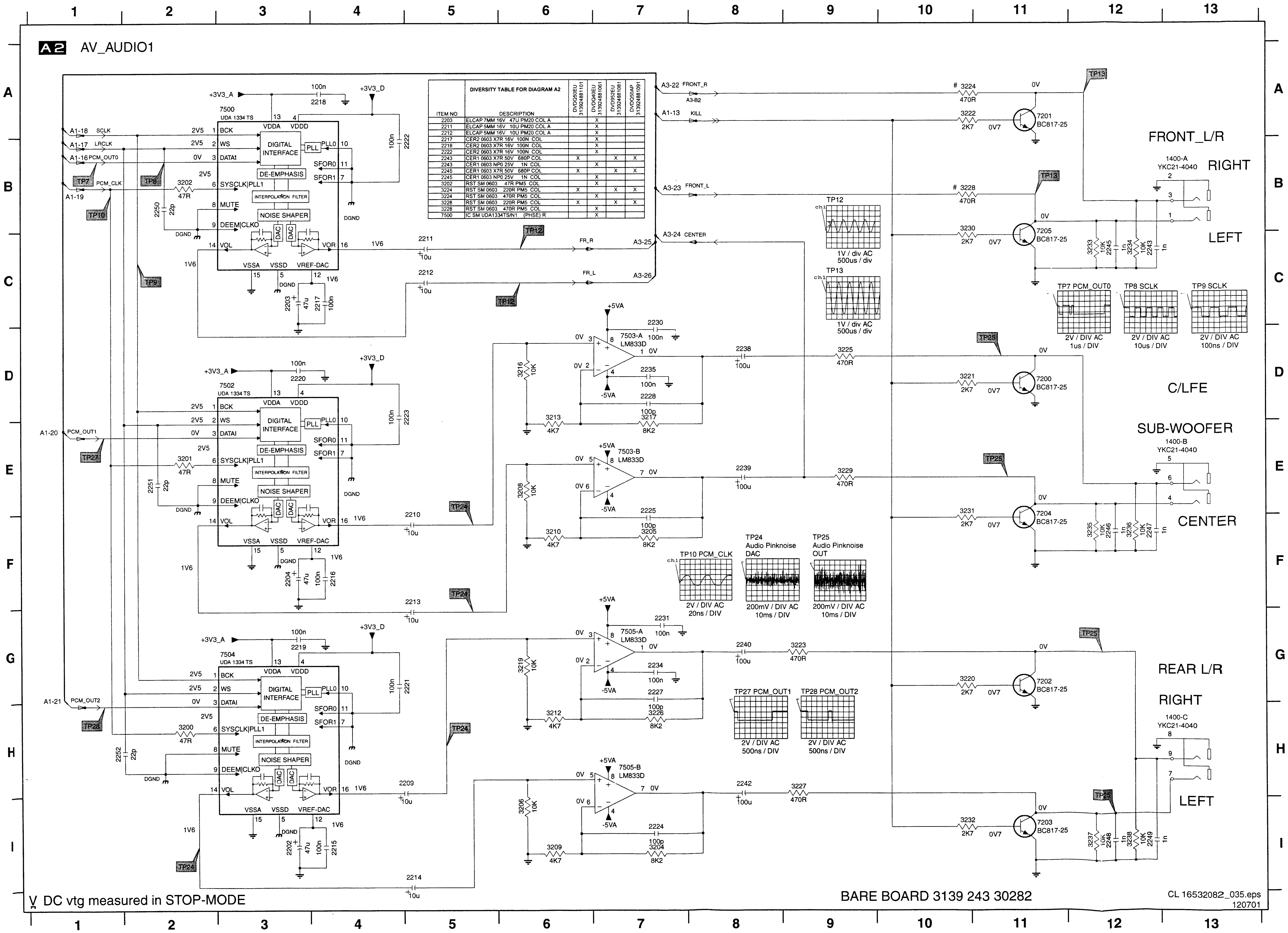

A1 AV_VIDEO
TO MONO BOARD
TO MONO BOARD
1100
1101
H_SYNC
PCM_OUT2_MONO
PCM_OUT1_MONO
-VCC
I2C_CLK A3-3
+12VSTBY
I2C_CLD A3-4
+5VSTBY
CIN A1-5
YIN A1-6
TP28
TP27
7404 MC79L05ABD
4118
-5V
3100 4R7
3101 4R7
-4V9
-5VVID
-5VA
+5VVID
+5VA
4104
4107
3105 4R7
2117
2111
7400 LA7109
VIN1+ NFB1 MUTE1 VIN2+ NFB2 MUTE2 VIN3+ NFB3 MUTE3 VIN4+ NFB4 VIN5+ NFB5 VIN6+ NFB6
VOUT1 VOUT2 VOUT3 VOUT4 VOUT5 VOUT6
DR-CTL1 DR-CTL2
+VCC GND NC
A1-7 P50
*VIDEO_MUTE
A1-11 CVBS
A1-6 YIN
A1-5 CIN
A1-9 Y_G
A1-8 U_B
A1-10 V_R
TP4 TP6 TP5 TP22 TP23
4108
+5VVID
4111
7104 BC817-25
7401 LF33CV
6100 1SS355
6101 1SS355
+5V
+3V3_A
+3V3_D
4100
7403 74F365D
PCM_OUT0_MONO
LRCLK_MONO
SCLK_MONO
PCM_CLK_MONO
PCM_OUT1_MONO
PCM_OUT2_MONO
PCM_OUT0 A2-16,A3-16
LRCLK A2-17,A3-17
SCLK A2-18,A3-18
PCM_CLK A2-19,A3-19
PCM_OUT1 A2-20
PCM_OUT2 A2-21
TP7 TP8 TP9 TP10
4112 4113 4114 4115 4116 4117
CENTER_ON A3-14
96|48 A3-15
SPDIF
KILL A1-13,A3-13
A1-12
7102 BC847B
7101 BC847B
7103 BC847B
P50
RESERVED
1405 YKC21-3337
1403-A YKC21-3930
1403-B YKC21-3930
1403-C YKC21-3930
1401-A YKC21-4105
Y
U
V
CVBS
S.VIDEO
1402 TCS79
5100 DSS306
5101 DSS306
5102 DSS306
5104 DSS306
BZX284-C15
TP14 TP15 TP16 TP17 TP18 TP19
OPTICAL
7402 GP1F32T
DRIVER
TP11
DIGITAL
1404 YKC21-3416
5103 920927152B
TP21
TP7 PCM_OUT0
2V / DIV AC 1us / DIV
TP8 SCLK
2V / DIV AC 10us / DIV
TP9 SCLK
2V / DIV AC 100ns / DIV
TP10 PCM_CLK
2V / DIV AC 20ns / DIV
TP27 PCM_OUT1
2V / DIV AC 500ns / DIV
TP28 PCM_OUT2
2V / DIV AC 500ns / DIV
* OPTION
V DC vtg measured in STOP-MODE
BARE BOARD 3139 243 30282
CL 16532082_034.eps
120701

ITEM NO	DIVERSITY TABLE FOR DIAGRAM A1 DESCRIPTION	DVDQ50EU 313924881101	DVDQ40EU 313924881061	DVD952EU 313924881081	DVDQ50AP 313924881091
1403	CON BM CINCH H 3P F RDBUGN B		X	X	X
2103	ELCAP 25V S 100U PM20 COL A	X		X	X
2103	ELCAP 6V3 S 1000U PM20 COL A		X		
2111	ELCAP 7MM 6V3 1000U PM20 COL A	X		X	X
2111	ELCAP 7MM 16V 100U PM20 COL A		X		
3102	RST SM 0603 75R PM5 COL		X	X	X
3103	RST SM 0603 75R PM5 COL		X	X	X
3104	RST SM 0603 75R PM5 COL		X	X	X
4101	RST SM 0603 JUMP. 0R05 COL		X	X	X
4102	RST SM 0603 JUMP. 0R05 COL		X	X	X
4103	RST SM 0603 JUMP. 0R05 COL		X	X	X
4105	RST SM 0603 JUMP. 0R05 COL	X	X	X	
4106	RST SM 0603 JUMP. 0R05 COL				X
6106	DIO REG SM BZX384-C8V2 COL R				X
6107	DIO REG SM BZX384-C8V2 COL R				X

1100	A1
1101	E1
1401-A	E13
1402	G13
1403-A	B13
1403-B	C13
1403-C	D13
1404	H13
1405	A13
2100	B4
2101	B4
2102	B4
2103	B4
2104	A6
2105	A7
2106	A7
2107	D9
2109	A9
2110	A8
2111	C4
2112	E3
2113	F12
2114	F12
2115	H12
2116	H12
2117	C4
2118	E3
2119	E4
2120	H7
2121	H10
2122	I10
2123	I12
2124	I12
2125	C12
2126	D12
2127	E12
2128	B11
2129	B12
2130	E4
2131	F4
2132	B3
3100	A3
3101	B3
3102	C11
3103	C11
3104	C11
3105	C4
3106	E10
3107	D3
3108	F10
3109	E8
3110	E8
3111	E8
3112	G10
3113	F7
3114	G10
3115	F7
3116	F7
3117	E3
3118	D3
3119	E3
3120	I8
3121	I9
3122	H11
3128	B11
3129	A11
4100	E5
4101	C12
4102	C12
4103	D12
4104	C3
4105	E1
4106	B11
4107	C3
4108	A8
4109	A9
4110	E10
4111	A9
4112	G4
4113	H4
4114	H4
4115	H4
4116	H4
4117	H4
4118	A2
5100	C12
5101	D12
5102	D12
5103	H11
5104	E10
6100	D4
6101	D4
6102	D10
6103	D11
6104	D11
6105	F10
6106	F10
6107	H10
7101	E8
7102	E7
7103	F7
7104	D3
7400	A7
7401	D4
7402	I8
7403	F3
7404	A2



A/V Board (Audio 1)


A2 AV_AUDIO1
1 2 3 4 5 6 7 8 9 10 11 12 13
A B C D E F G H I
+3V3_A
+3V3_D
100n
2218
7500
UDA 1334 TS
7502
UDA 1334 TS
7504
UDA 1334 TS
VDDA VDDD
BCK
WS
DATAI
DIGITAL INTERFACE
PLL
PLL0
SFOR0
SFOR1
DE-EMPHASIS
SYSCLK|PLL1
INTERPOLATION FILTER
MUTE
NOISE SHAPER
DEEM|CLKO
DAC
VOL
VOR
VSSA VSSD VREF-DAC
DGND
A1-18 SCLK
A1-17 LRCLK
A1-16 PCM_OUT0
A1-19 PCM_CLK
A1-20 PCM_OUT1
A1-21 PCM_OUT2
TP7
TP8
TP9
TP10
TP12
TP13
TP24
TP25
TP27
TP28
3202 47R
3201 47R
3200 47R
2250 22p
2251 22p
2252 22p
2211 10u
2212 10u
2210 10u
2213 10u
2209 10u
2214 10u
2203 47u
2217 100n
2204 47u
2216 100n
2202 47u
2215 100n
2222 100n
2223 100n
2221 100n
2V5
0V
1V6
FR_R
FR_L
A3-22 FRONT_R
A3-B2
A1-13 KILL
A3-23 FRONT_L
A3-24 CENTER
A3-25
A3-26
+5VA
-5VA
7503-A LM833D
7503-B LM833D
7505-A LM833D
7505-B LM833D
2230 100n
2235 100n
2228 100p
3217 8K2
3216 10K
3213 4K7
2225 100p
3205 8K2
3208 10K
3210 4K7
2231 100n
2234 100n
2227 100p
3226 8K2
3219 10K
3212 4K7
2224 100p
3204 8K2
3206 10K
3209 4K7
2238 100u
2239 100u
2240 100u
2242 100u
3225 470R
3229 470R
3223 470R
3227 470R
# 3224 470R
# 3228 470R
3222 2K7
3230 2K7
3221 2K7
3231 2K7
3220 2K7
3232 2K7
0V7
7201 BC817-25
7205 BC817-25
7200 BC817-25
7204 BC817-25
7202 BC817-25
7203 BC817-25
3233 10K
2245 1n
3234 10K
2243 1n
3235 10K
2246 1n
3236 10K
2247 1n
3237 10K
2248 1n
3238 10K
2249 1n
FRONT_L/R
1400-A YKC21-4040
RIGHT
LEFT
C/LFE
SUB-WOOFER
1400-B YKC21-4040
CENTER
REAR L/R
RIGHT
1400-C YKC21-4040
LEFT
TP12 1V / div AC 500us / div
TP13 1V / div AC 500us / div
TP7 PCM_OUT0 2V / DIV AC 1us / DIV
TP8 SCLK 2V / DIV AC 10us / DIV
TP9 SCLK 2V / DIV AC 100ns / DIV
TP10 PCM_CLK 2V / DIV AC 20ns / DIV
TP24 Audio Pinknoise DAC 200mV / DIV AC 10ms / DIV
TP25 Audio Pinknoise OUT 200mV / DIV AC 10ms / DIV
TP27 PCM_OUT1 2V / DIV AC 500ns / DIV
TP28 PCM_OUT2 2V / DIV AC 500ns / DIV
ch1

ITEM NO	DIVERSITY TABLE FOR DIAGRAM A2 DESCRIPTION	DVDQ50EU 313924881101	DVDQ40EU 313924881061	DVD952EU 313924881081	DVDQ50AP 313924881091
2203	ELCAP 7MM 16V 47U PM20 COL A		X		
2211	ELCAP 5MM 16V 10U PM20 COL A		X		
2212	ELCAP 5MM 16V 10U PM20 COL A		X		
2217	CER2 0603 X7R 16V 100N COL		X		
2218	CER2 0603 X7R 16V 100N COL		X		
2222	CER2 0603 X7R 16V 100N COL		X		
2243	CER1 0603 X7R 50V 680P COL	X		X	X
2243	CER1 0603 NP0 25V 1N COL		X		
2245	CER1 0603 X7R 50V 680P COL	X		X	X
2245	CER1 0603 NP0 25V 1N COL		X		
3202	RST SM 0603 47R PM5 COL		X		
3224	RST SM 0603 220R PM5 COL	X		X	X
3224	RST SM 0603 470R PM5 COL		X		
3228	RST SM 0603 220R PM5 COL	X		X	X
3228	RST SM 0603 470R PM5 COL		X		
7500	IC SM UDA1334TS/N1 (PHSE) R		X		

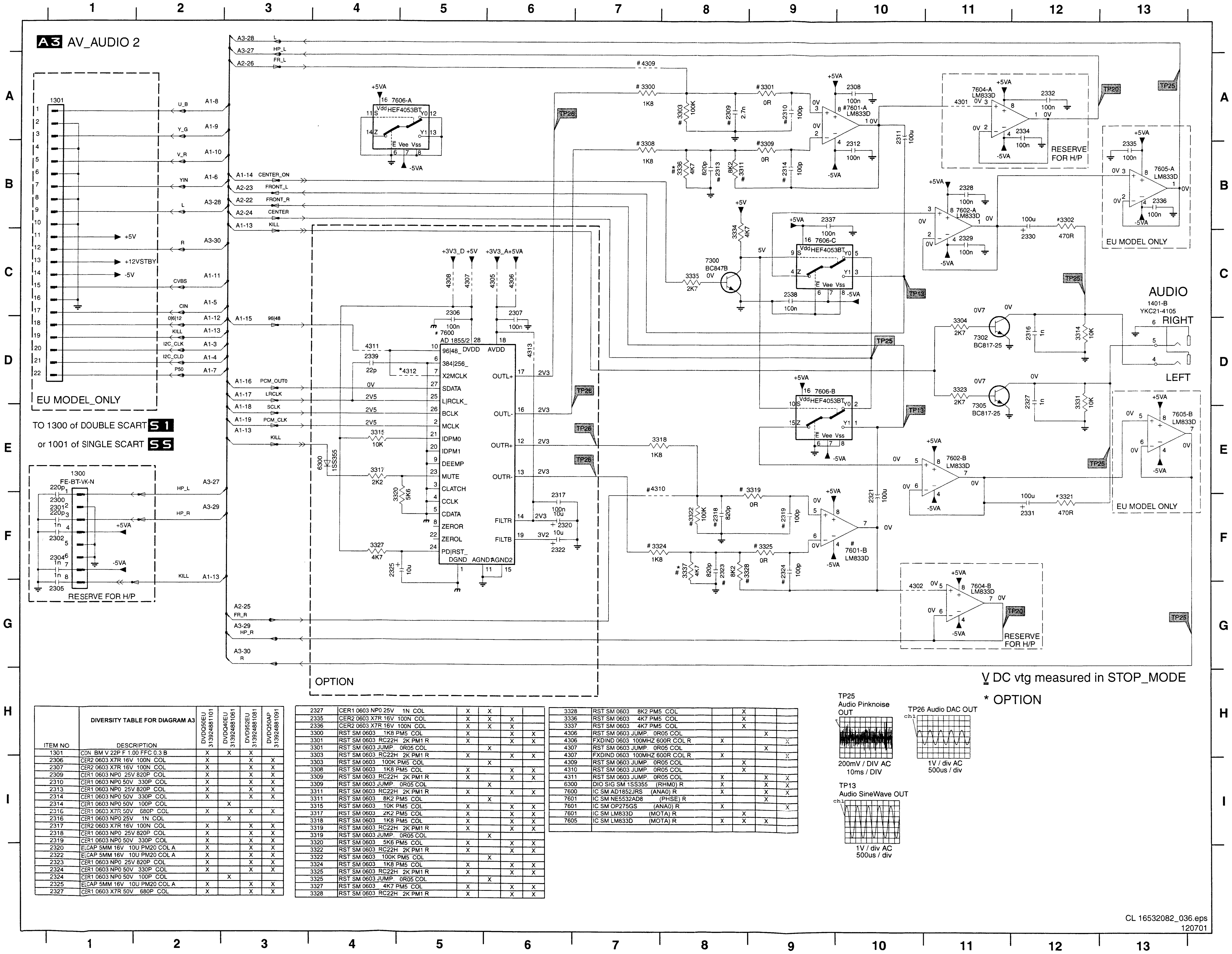
V DC vtg measured in STOP-MODE

BARE BOARD 3139 243 30282

CL 16532082_035.eps
120701

1400-A	B13
1400-B	E13
1400-C	H13
2202	I3
2203	C3
2204	F3
2209	H5
2210	F5
2211	C5
2212	C5
2213	F5
2214	I5
2215	I4
2216	F4
2217	C4
2218	A4
2219	G3
2220	D3
2221	G5
2222	B5
2223	D5
2224	I7
2225	E7
2227	G7
2228	D7
2230	C7
2231	G7
2234	G7
2235	D7
2238	D8
2239	E8
2240	G8
2242	H8
2243	C12
2245	C12
2246	F12
2247	F12
2248	I12
2249	I12
2250	B2
2251	E2
2252	H1
3200	H2
3201	E2
3202	B2
3204	I7
3205	F7
3206	I6
3208	E6
3209	I6
3210	F6
3212	H6
3213	D6
3216	D6
3217	D7
3219	G6
3220	G10
3221	D10
3222	A10
3223	G9
3224	A10
3225	D9
3226	H7
3227	H9
3228	B10
3229	E9
3230	B10
3231	E10
3232	I10
3233	C12
3234	C12
3235	F12
3236	F12
3237	I12
3238	I12
7200	D11
7201	A11
7202	G11
7203	I11
7204	F11
7205	C11
7500	A3
7502	D3
7503-A	D7
7503-B	E7
7504	G3
7505-A	G7
7505-B	H7

A/V Board (Audio 2)

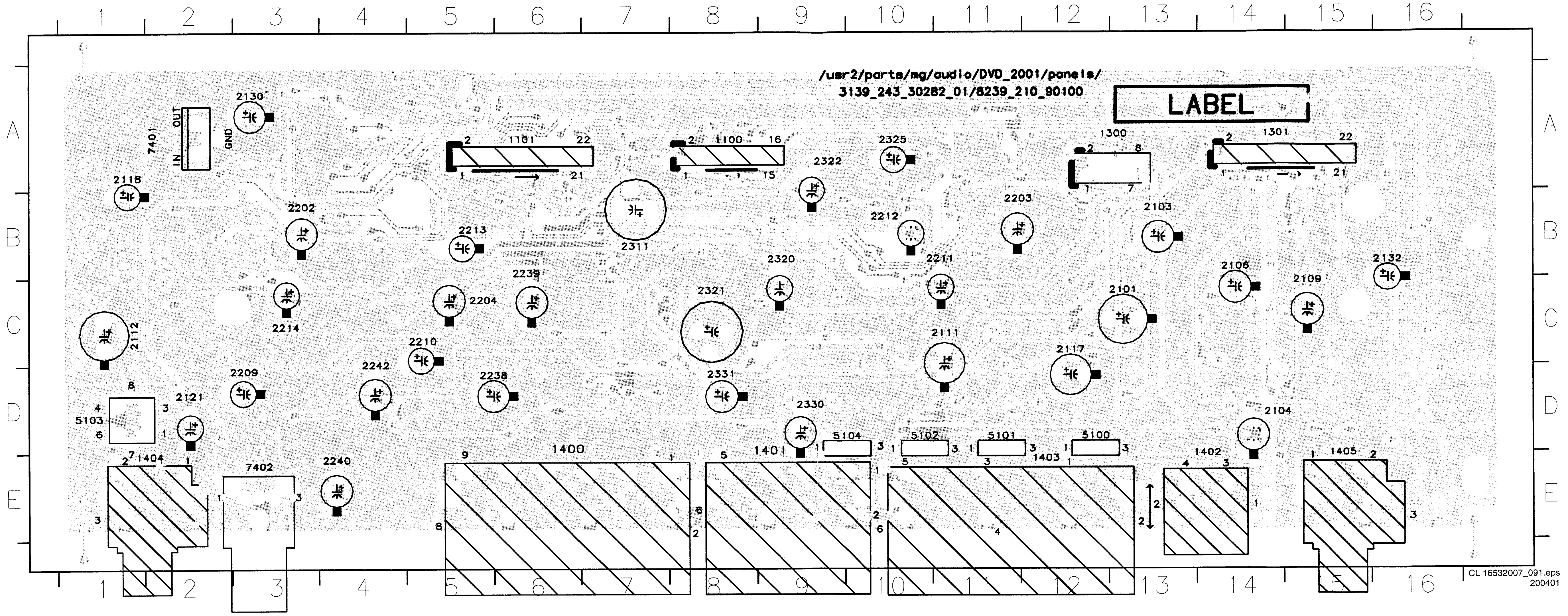

A3 AV_AUDIO 2
1301
EU MODEL_ONLY
TO 1300 of DOUBLE SCART S1
or 1001 of SINGLE SCART SS
1300
FE-BT-VK-N
RESERVE FOR H/P
7606-A HEF4053BT
7606-C HEF4053BT
7606-B HEF4053BT
7600 AD 1855/2
7601-A LM833D
7601-B LM833D
7602-A LM833D
7602-B LM833D
7604-A LM833D
7604-B LM833D
7605-A LM833D
7605-B LM833D
7300 BC847B
7302 BC817-25
7305 BC817-25
OPTION
RESERVE FOR H/P
EU MODEL ONLY
AUDIO
1401-B YKC21-4105
RIGHT
LEFT
V DC vtg measured in STOP_MODE
* OPTION
TP25 Audio Pinknoise OUT
200mV / DIV AC 10ms / DIV
TP26 Audio DAC OUT
1V / div AC 500us / div
TP13 Audio SineWave OUT
1V / div AC 500us / div
CL 16532082_036.eps
120701

ITEM NO	DIVERSITY TABLE FOR DIAGRAM A3 DESCRIPTION	DVDQ50EU 313924881101	DVDQ40EU 313924881061	DVD952EU 313924881081	DVDQ50AP 313924881091
1301	CON BM V 22P F 1.00 FFC 0.3 B	X	X	X	
2306	CER2 0603 X7R 16V 100N COL	X		X	X
2307	CER2 0603 X7R 16V 100N COL	X		X	X
2309	CER1 0603 NP0 25V 820P COL	X		X	X
2310	CER1 0603 NP0 50V 330P COL	X		X	X
2313	CER1 0603 NP0 25V 820P COL	X		X	X
2314	CER1 0603 NP0 50V 330P COL	X		X	X
2314	CER1 0603 NP0 50V 100P COL		X		
2316	CER1 0603 X7R 50V 680P COL	X		X	X
2316	CER1 0603 NP0 25V 1N COL		X		
2317	CER2 0603 X7R 16V 100N COL	X		X	X
2318	CER1 0603 NP0 25V 820P COL	X		X	X
2319	CER1 0603 NP0 50V 330P COL	X		X	X
2320	ELCAP 5MM 16V 10U PM20 COL A	X		X	X
2322	ELCAP 5MM 16V 10U PM20 COL A	X		X	X
2323	CER1 0603 NP0 25V 820P COL	X		X	X
2324	CER1 0603 NP0 50V 330P COL	X		X	X
2324	CER1 0603 NP0 50V 100P COL		X		
2325	ELCAP 5MM 16V 10U PM20 COL A	X		X	X
2327	CER1 0603 X7R 50V 680P COL	X		X	X
2327	CER1 0603 NP0 25V 1N COL	X	X		
2335	CER2 0603 X7R 16V 100N COL	X	X	X	
2336	CER2 0603 X7R 16V 100N COL	X	X	X	
3300	RST SM 0603 1K8 PM5 COL	X		X	X
3301	RST SM 0603 RC22H 2K PM1 R	X		X	X
3301	RST SM 0603 JUMP. 0R05 COL		X		
3303	RST SM 0603 RC22H 2K PM1 R	X		X	X
3303	RST SM 0603 100K PM5 COL		X		
3308	RST SM 0603 1K8 PM5 COL	X		X	X
3309	RST SM 0603 RC22H 2K PM1 R	X		X	X
3309	RST SM 0603 JUMP. 0R05 COL		X		
3311	RST SM 0603 RC22H 2K PM1 R	X		X	X
3311	RST SM 0603 8K2 PM5 COL		X		
3315	RST SM 0603 10K PM5 COL	X		X	X
3317	RST SM 0603 2K2 PM5 COL	X		X	X
3318	RST SM 0603 1K8 PM5 COL	X		X	X
3319	RST SM 0603 RC22H 2K PM1 R	X		X	X
3319	RST SM 0603 JUMP. 0R05 COL		X		
3320	RST SM 0603 5K6 PM5 COL	X		X	X
3322	RST SM 0603 RC22H 2K PM1 R	X		X	X
3322	RST SM 0603 100K PM5 COL		X		
3324	RST SM 0603 1K8 PM5 COL	X		X	X
3325	RST SM 0603 RC22H 2K PM1 R	X		X	X
3325	RST SM 0603 JUMP. 0R05 COL		X		
3327	RST SM 0603 4K7 PM5 COL	X		X	X
3328	RST SM 0603 RC22H 2K PM1 R	X		X	X
3328	RST SM 0603 8K2 PM5 COL		X		
3336	RST SM 0603 4K7 PM5 COL		X		
3337	RST SM 0603 4K7 PM5 COL		X		
4306	RST SM 0603 JUMP. 0R05 COL			X	
4306	FXDIND 0603 100MHZ 600R COL R	X			X
4307	RST SM 0603 JUMP. 0R05 COL			X	
4307	FXDIND 0603 100MHZ 600R COL R	X			X
4309	RST SM 0603 JUMP. 0R05 COL		X		
4310	RST SM 0603 JUMP. 0R05 COL		X		
4311	RST SM 0603 JUMP. 0R05 COL	X		X	X
6300	DIO SIG SM 1SS355 (RHM0) R	X		X	X
7600	IC SM AD1852JRS (ANA0) R	X		X	X
7601	IC SM NE5532AD8 (PHSE) R			X	
7601	IC SM OP275GS (ANA0) R	X			X
7601	IC SM LM833D (MOTA) R		X		
7605	IC SM LM833D (MOTA) R	X	X	X	

1300	E1
1301	A1
1401-B	C13
2300	F1
2301	F1
2302	F1
2304	F1
2305	G1
2306	C5
2307	C6
2308	A10
2309	A8
2310	A9
2311	A10
2312	B10
2313	B8
2314	B9
2316	D12
2317	F6
2318	F8
2319	F9
2320	F6
2321	F10
2322	F6
2323	F8
2324	F9
2325	F4
2327	D12
2328	B11
2329	C11
2330	C12
2331	F12
2332	A12
2334	A12
2335	B13
2336	B13
2337	B9
2338	C9
2339	D4
3300	A7
3301	A9
3302	B12
3303	A8
3304	D11
3308	B7
3309	B9
3311	B8
3314	D12
3315	E4
3317	E4
3318	E7
3319	E9
3320	F5
3321	F12
3322	F8
3323	D11
3324	F7
3325	F9
3327	F4
3328	F8
3331	D12
3334	C8
3335	C8
3336	B8
3337	F8
4301	A11
4302	G10
4305	C6
4306	C6
4307	C5
4308	C5
4309	A7
4310	F7
4311	D5
4312	D5
4313	D6
6300	E4
7300	C8
7302	D11
7305	E11
7600	D5
7601-A	A10
7601-B	F10
7602-A	B11
7602-B	E11
7604-A	A11
7604-B	G11
7605-A	B13
7605-B	E13
7606-A	A5
F300	A1
F301	D1
F302	A1
F303	B1
F304	B1
F305	B1
F307	C1
F310	E1
F312	F1
F313	F1
F321	F1
F322	F1
F323	D1
F324	C1
I154	D5
I300	A9
I303	A10
I304	D13
I305	B9
I308	C12
I312	F10
I314	F9
I316	F13
I317	C8
I319	B10
I321	C11
I324	E10
I326	E11
I331	A7
I332	B7
I333	E5
I334	E7
I335	E5
I336	E7
I337	F6
I338	F5
I339	F6
I340	A11
I341	B8
I342	B10
I343	B12
I344	C8
I345	D11
I346	D11
I347	E10
I348	F12
I349	F8
I350	G11
I351	E4
I352	A8
I353	E8

Layout A/V Board (Top View)

1100	A8
1101	A6
1300	A13
1301	A14
1400	D6
1401	D9
1402	E14
1403	E12
1404	E2
1405	E15
2101	C13
2103	B13
2104	D14
2106	B14
2109	C15
2111	C11
2112	C1
2117	C12
2118	A1
2121	D2
2130	A3
2132	B16
2202	B3
2203	B11
2204	C5
2209	D3
2210	C5
2211	B11
2212	B10
2213	B5
2214	C3
2238	D5
2239	B6
2240	E4
2242	C4
2311	B7
2320	B9
2321	C8
2322	A9
2325	A10
2330	D9
2331	D8
5100	D12
5101	D11
5102	D10
5103	D1
5104	D10
7401	A2
7402	E3



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/usr2/parts/mg/audio/DVD_2001/panels/
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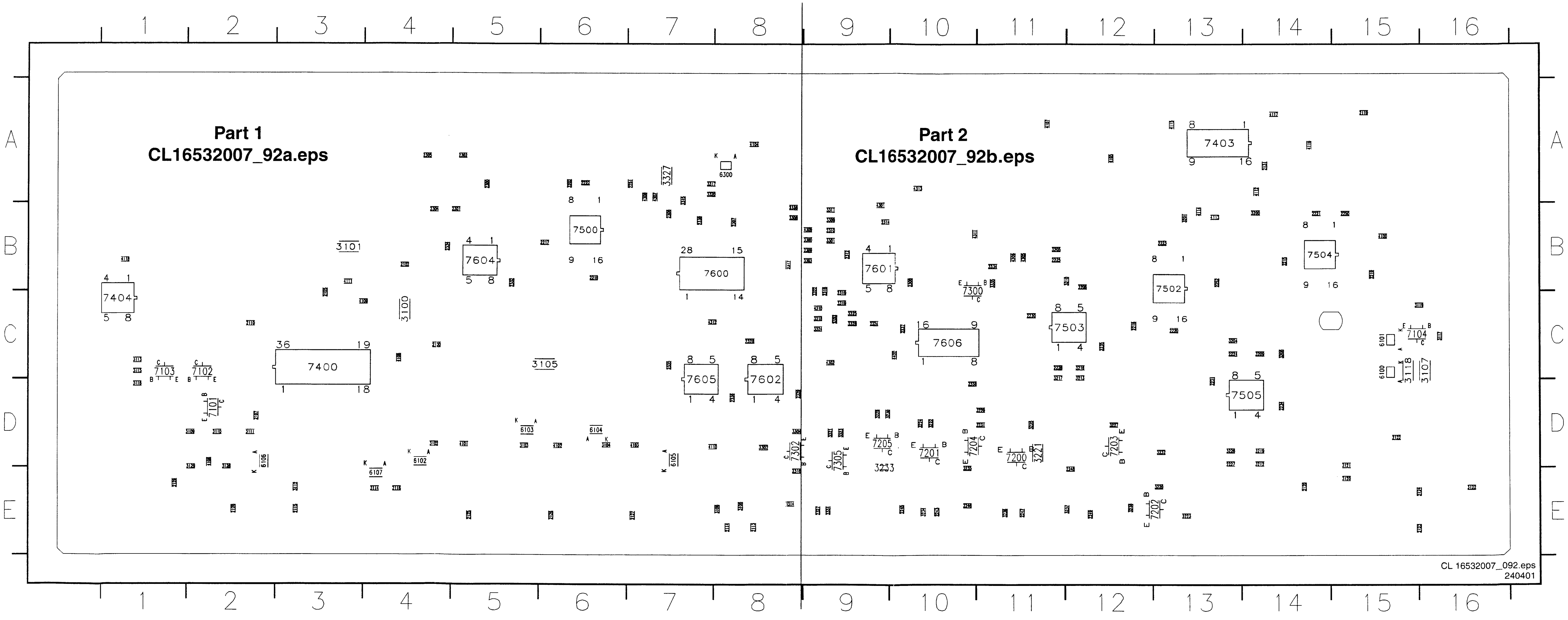
LABEL
7401
OUT
IN
GND
2130
2118
2202
1101
1100
2322
2325
2212
1300
1301
2203
2103
2213
2311
2239
2320
2211
2106
2109
2132
2214
2204
2321
2101
2112
2210
2111
2117
2209
2242
2238
2331
2330
2104
5103
2121
5104
5102
5101
5100
1404
7402
2240
1400
1401
1403
1402
1405

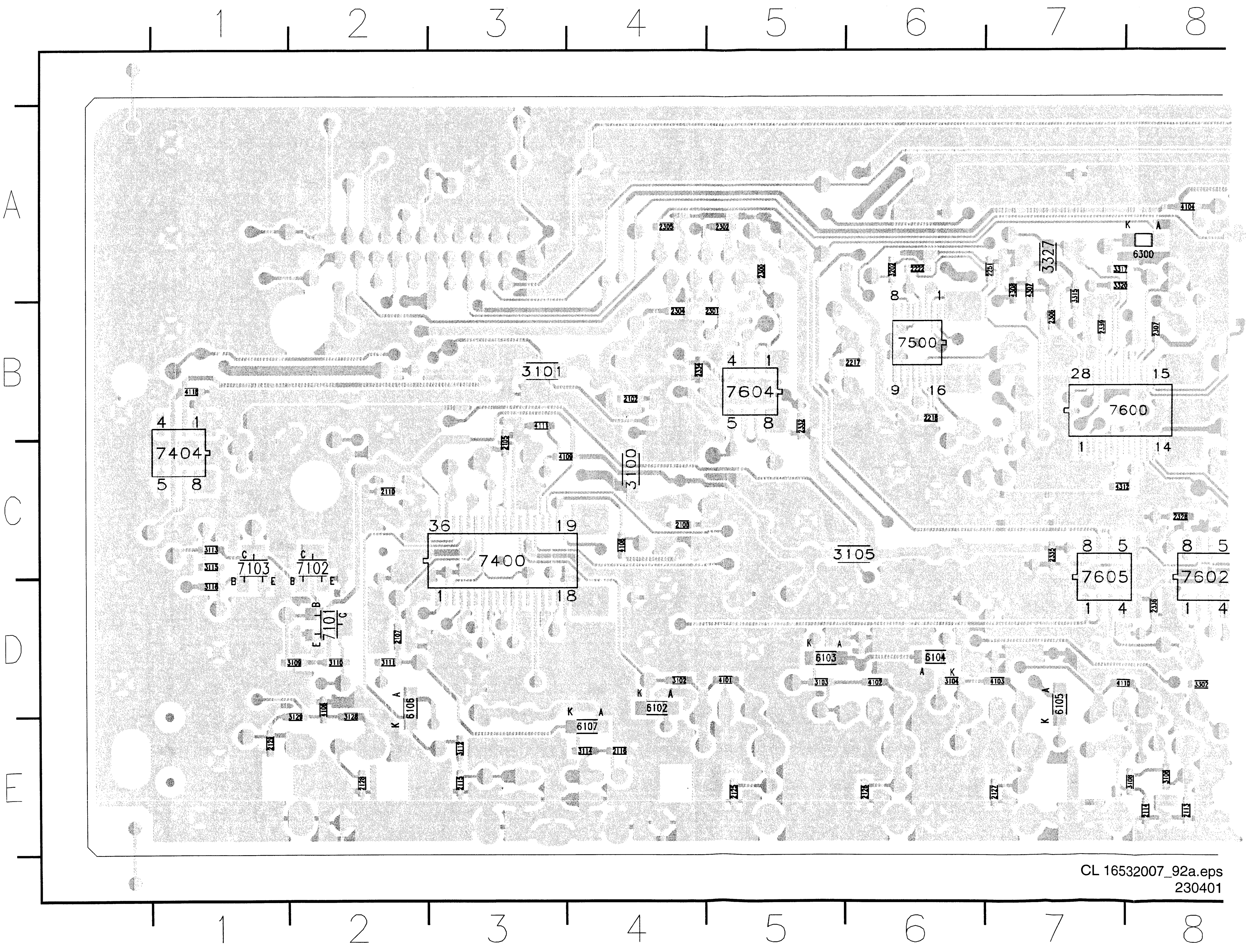
CL 16532007_091.eps
200401

A/V Board (Overview Bottom View)

2100	C4
2102	B4
2105	C3
2107	D2
2110	C2
2113	E8
2114	E8
2115	E3
2116	E4
2119	A15
2120	E14
2122	D15
2123	E15
2124	E15
2125	E5
2126	E6
2127	E7
2128	E2
2129	E1
2131	A14
2215	B14
2216	C12
2217	B6
2218	B6
2219	B15
2220	C13
2221	B14
2222	A6
2223	B13
2224	C13
2225	B11
2227	D13
2228	C11
2230	C11
2231	D13
2234	D14
2235	C12
2243	E10
2245	E10
2246	E10
2247	E11
2248	E12
2249	E12
2250	B15
2251	A7
2252	B13
2300	A5
2301	B5
2302	A5
2304	B4
2305	A4
2306	B7
2307	B8
2308	B10
2309	B9
2310	B9
2312	B9
2313	B8
2314	B9
2316	E8
2317	B8
2318	B9
2319	C9
2323	C9
2324	C9
2327	E9
2328	C8
2329	D8
2332	B5
2334	B4
2335	C7
2336	D8
2337	C10
2338	D10
2339	B7
3100	C4
3101	B3
3102	D4
3103	D5
3104	D6
3105	C6
3106	E8
3107	C16
3108	E8
3109	D2
3110	D2
3111	D2
3112	E3
3113	C1
3114	E4
3115	C1
3116	D1
3117	C16
3118	C15
3119	C15
3120	E15
3121	D15
3122	E16
3128	D2
3129	D2
3200	B14
3201	B13
3202	A6
3204	C13
3205	B11
3206	C14
3208	B12
3209	C14
3210	B12
3212	D14
3213	C12
3216	C12
3217	C11
3219	D14
3220	E13
3221	D11
3222	D10
3223	E13
3224	D10
3225	D11
3226	D13
3227	D12
3228	D9
3229	D11
3230	D9
3231	D11
3232	D13
3233	D9
3234	E10
3235	E10
3236	E11
3237	E12
3238	E12
3300	B9
3301	B9
3302	D8
3303	B9
3304	D8
3308	B8
3309	B9
3311	B9
3314	E8
3315	A7
3317	A7
3318	C9
3319	C9
3320	A7
3321	D9
3322	B9
3323	D9
3324	C9
3325	C9
3327	A7
3328	C9
3331	E9
3334	B11
3335	B11
3336	B8
3337	C9
4100	B15
4101	D5
4102	D6
4103	D7
4104	A8
4105	A12
4106	D2
4107	A11
4108	C4
4109	C3
4110	D7
4111	B3
4112	A14
4113	B13
4114	B13
4115	A13
4116	A14
4117	A14
4118	B1
4301	B9
4302	C9
4305	B11
4306	B11
4307	A7
4308	A7
4309	B9
4310	C9
4311	B10
4312	C7
4313	A10
4400	C10
6100	C15
6101	C15
6102	D4
6103	D5
6104	D6
6105	D7
6106	D2
6107	E4
6300	A8
7101	D2
7102	C2
7103	C1
7104	C15
7200	D11
7201	D10
7202	E13
7203	D12
7204	D10
7205	D9
7300	B10
7302	D8
7305	D9
7400	C3
7403	A13
7404	C1
7500	B6
7502	B13
7503	C12
7504	B14
7505	D14
7600	B8
7601	B9
7602	C8
7604	B5
7605	C7
7606	C10

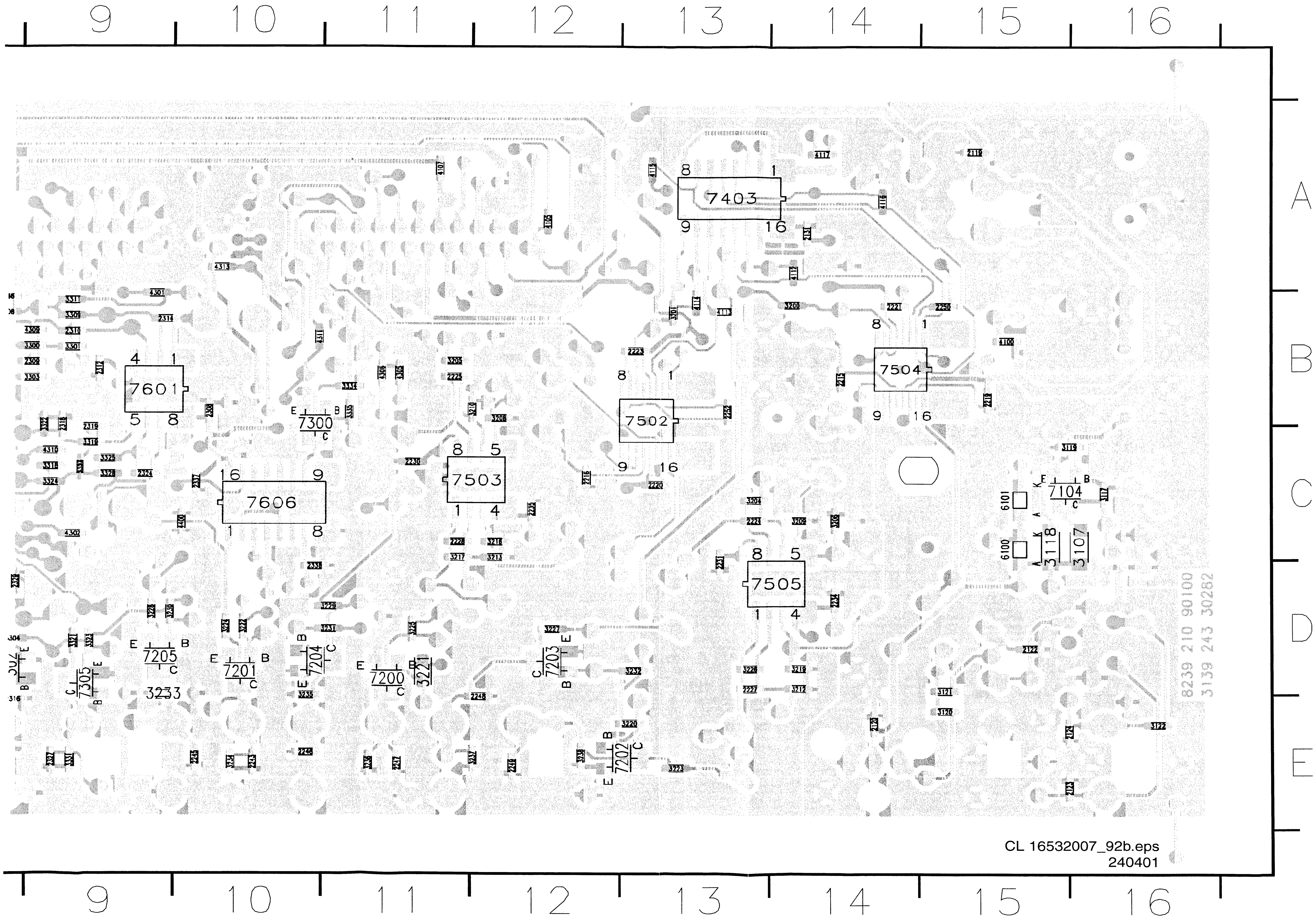

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
A B C D E
Part 1
CL16532007_92a.eps
Part 2
CL16532007_92b.eps
7404
7103
7102
7101
3101
7400
3100
7604
7500
3105
6103
6104
6107
6102
6106
6105
3327
6300
7600
7605
7602
7302
7305
7601
7300
7606
7205
7201
7204
7200
3221
3233
7203
7202
7503
7502
7403
7504
7505
7104
6101
6100
3118
3107
CL 16532007_092.eps
240401

A/V Board (Part 1 Bottom View)

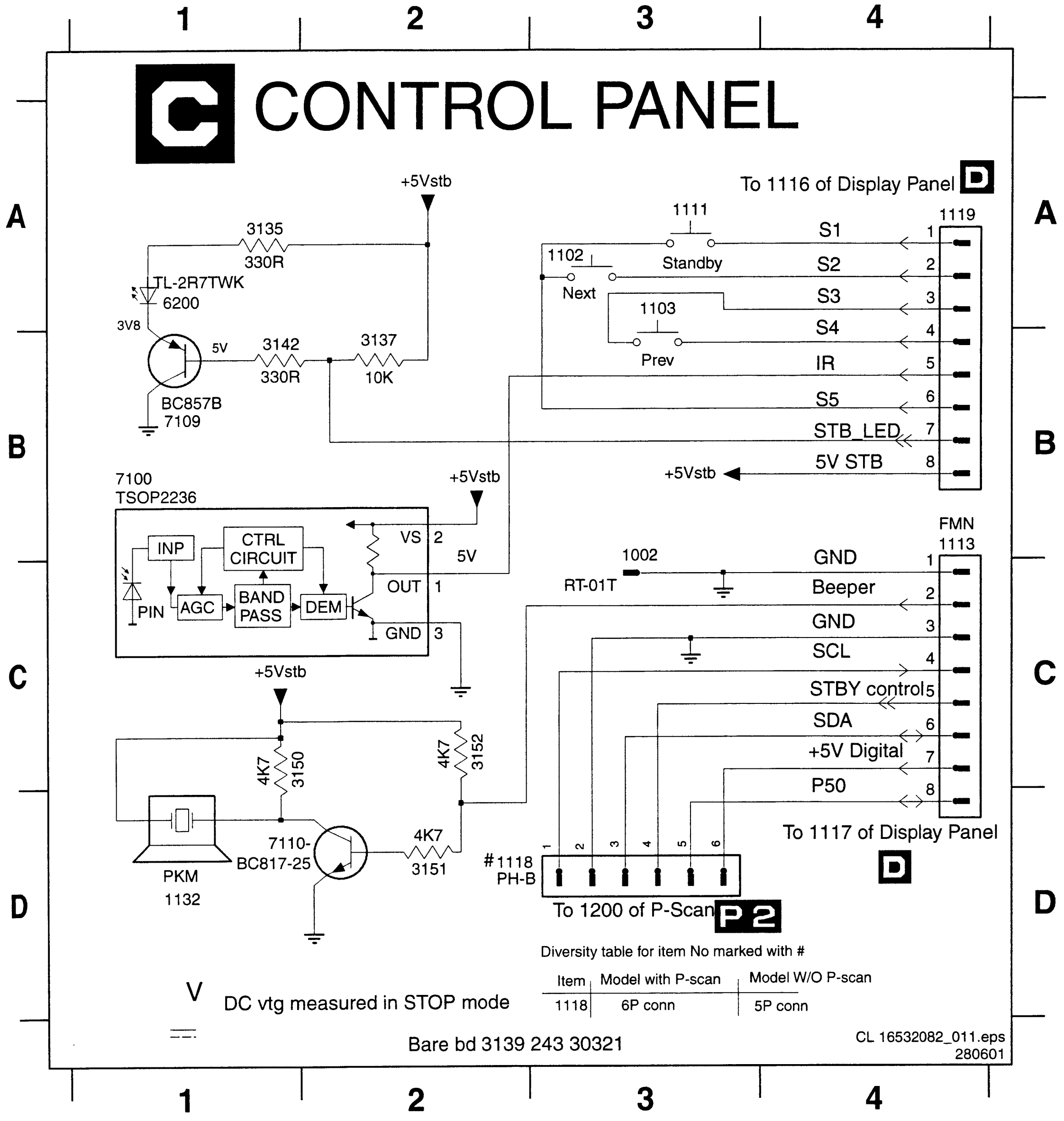

1
2
3
4
5
6
7
8
A
B
C
D
E
2305
2302
2300
2304
2301
3101
3100
2102
2332
4111
4110
4109
4104
2105
2110
2108
2106
2107
7604
4
1
5
8
7500
8
1
9
16
2217
2218
2202
2222
2251
3327
3308
3307
2308
3315
6300
K
A
3317
3320
2339
2307
7600
28
15
1
14
4312
2328
7404
4
1
5
8
7400
36
19
1
18
3113
3115
3116
7103
7102
C
B
E
7101
3109
3110
3111
3129
3108
3128
2126
2128
6106
6107
3114
2116
3112
3113
3105
6102
3102
4101
6103
3103
4102
6104
3104
4103
6105
4110
3302
2335
7605
8
5
1
4
2336
7602
8
5
1
4
3108
3106
2114
2113
2124
2125
2127

CL 16532007_92a.eps
230401

A/V Board (Part 2 Bottom View)


9
10
11
12
13
14
15
16
A
B
C
D
E
7403
7504
7601
7502
7300
7503
7606
7104
7505
7205
7201
7204
7200
3221
7203
7202
7305
3233
3118
3107
6101
6100
8239 210 90100
3139 243 30262
CL 16532007_92b.eps
240401

Control Panel


1
2
3
4
A
B
C
D
C
CONTROL PANEL
+5Vstb
3135
330R
TL-2R7TWK
6200
3V8
5V
3142
330R
3137
10K
BC857B
7109
To 1116 of Display Panel
D
1111
Standby
1102
Next
1103
Prev
S1
S2
S3
S4
IR
S5
STB_LED
5V STB
1119
1
2
3
4
5
6
7
8
7100
TSOP2236
+5Vstb
INP
CTRL
CIRCUIT
AGC
BAND
PASS
DEM
PIN
VS
OUT
GND
2
1
3
5V
+5Vstb
FMN
1113
1002
RT-01T
GND
Beeper
GND
SCL
STBY control
SDA
+5V Digital
P50
1
2
3
4
5
6
7
8
+5Vstb
4K7
3150
4K7
3152
7110-
BC817-25
4K7
3151
PKM
1132
#1118
PH-B
1
2
3
4
5
6
To 1117 of Display Panel
D
To 1200 of P-Scan
P 2
V
DC vtg measured in STOP mode
Bare bd 3139 243 30321
CL 16532082_011.eps
280601

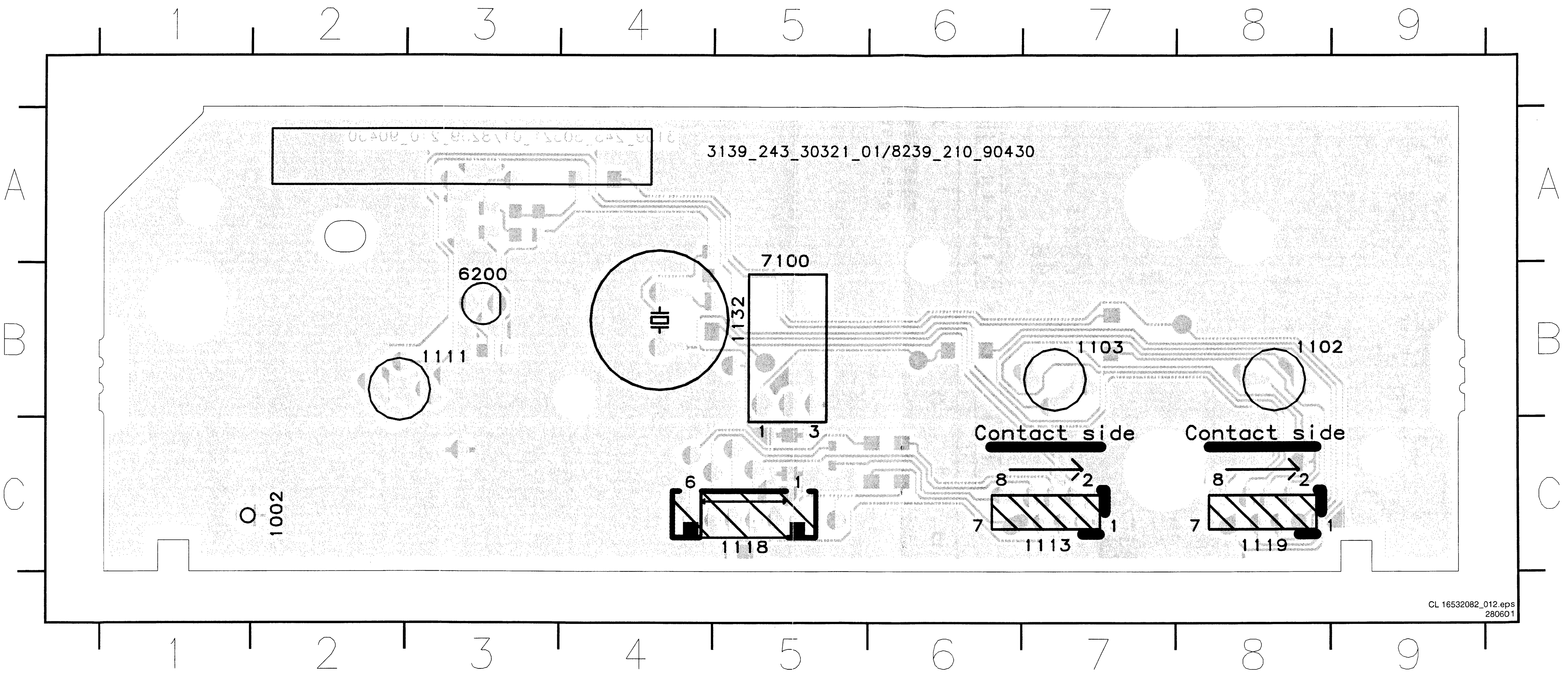
Diversity table for item No marked with #

Item	Model with P-scan	Model W/O P-scan
1118	6P conn	5P conn

1002	C3
1102	A3
1103	A3
1111	A3
1113	B4
1118	D3
1119	A4
1132	D1
3135	A1
3137	B2
3142	B1
3150	C1
3151	D2
3152	C2
6200	A1
7100	B1
7109	B1
7110-	D2

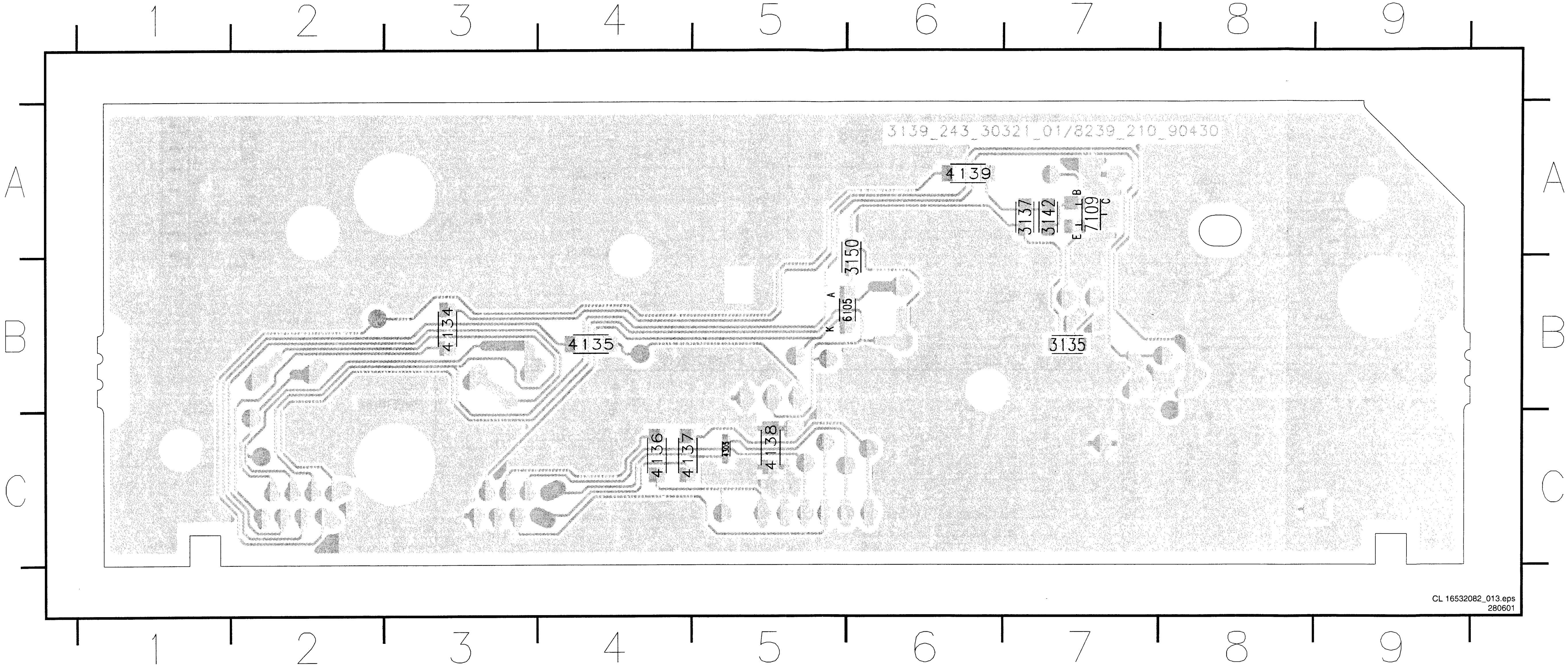
Layout Control Panel (Top View)

1002 C2	1102 B8	1103 B7	1111 B3	1113 C7	1118 C5	1119 C8	1132 B5	6200 B3	7100 A5

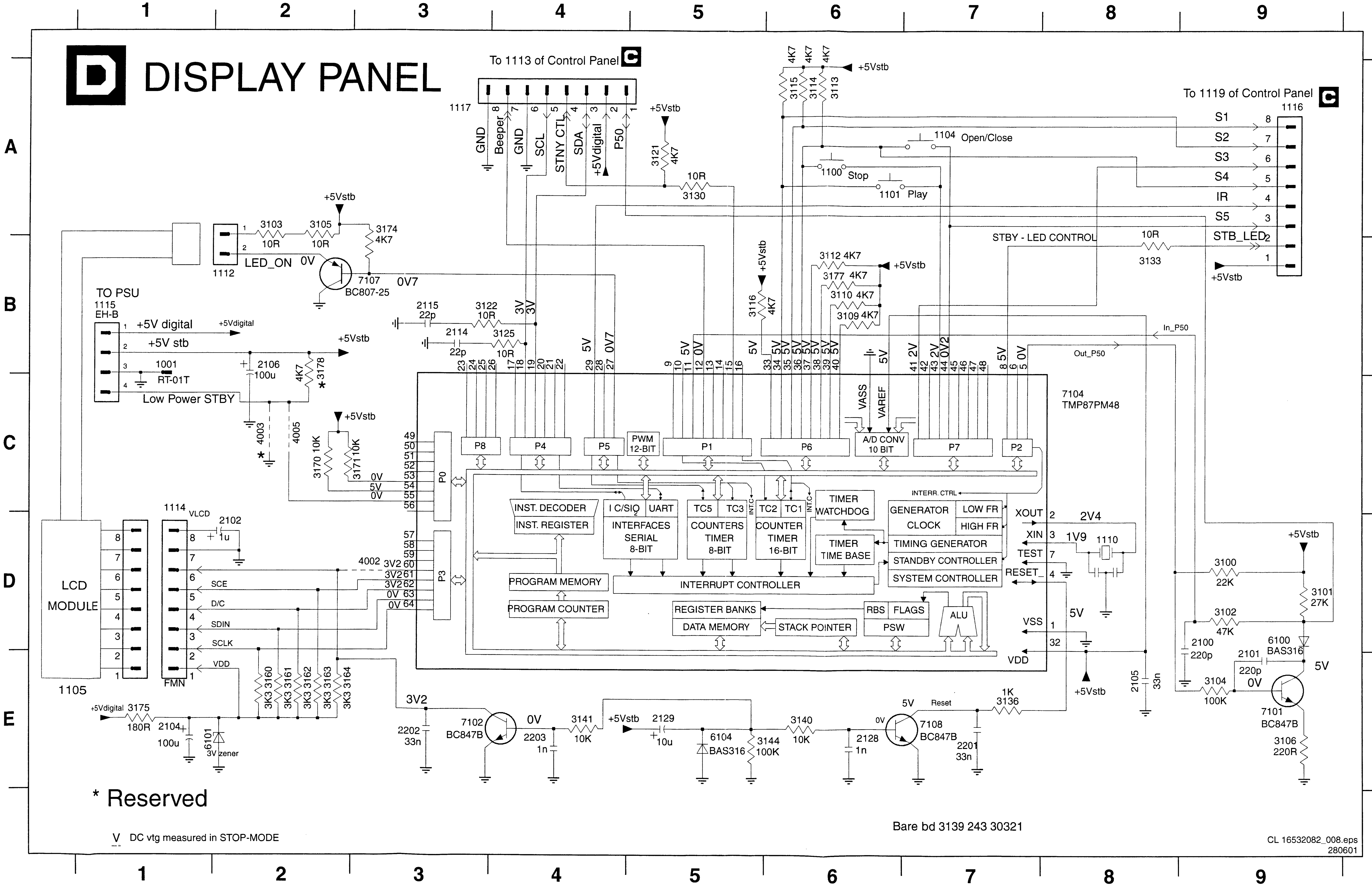

1
2
3
4
5
6
7
8
9
A
B
C
3139_243_30321_01/8239_210_90430
7100
6200
1132
1111
1103
1102
1
3
Contact side
Contact side
6
1
8
2
8
2
7
1
7
1
1002
1118
1113
1119
CL 16532082_012.eps
280601

Layout Control Panel (Bottom View)

3135	B7
3137	A7
3142	A7
3150	B6
4134	B3
4135	B4
4136	C4
4137	C4
4138	C5
4139	A6
4305	C5
6105	B6
7109	A7


1
2
3
4
5
6
7
8
9
A
B
C
3139_243_30321_01/8239_210_90430
4139
3137
3142
7109
B
E
C
3150
A
6105
K
4134
4135
3135
4136
4137
4305
4138
CL 16532082_013.eps
280601

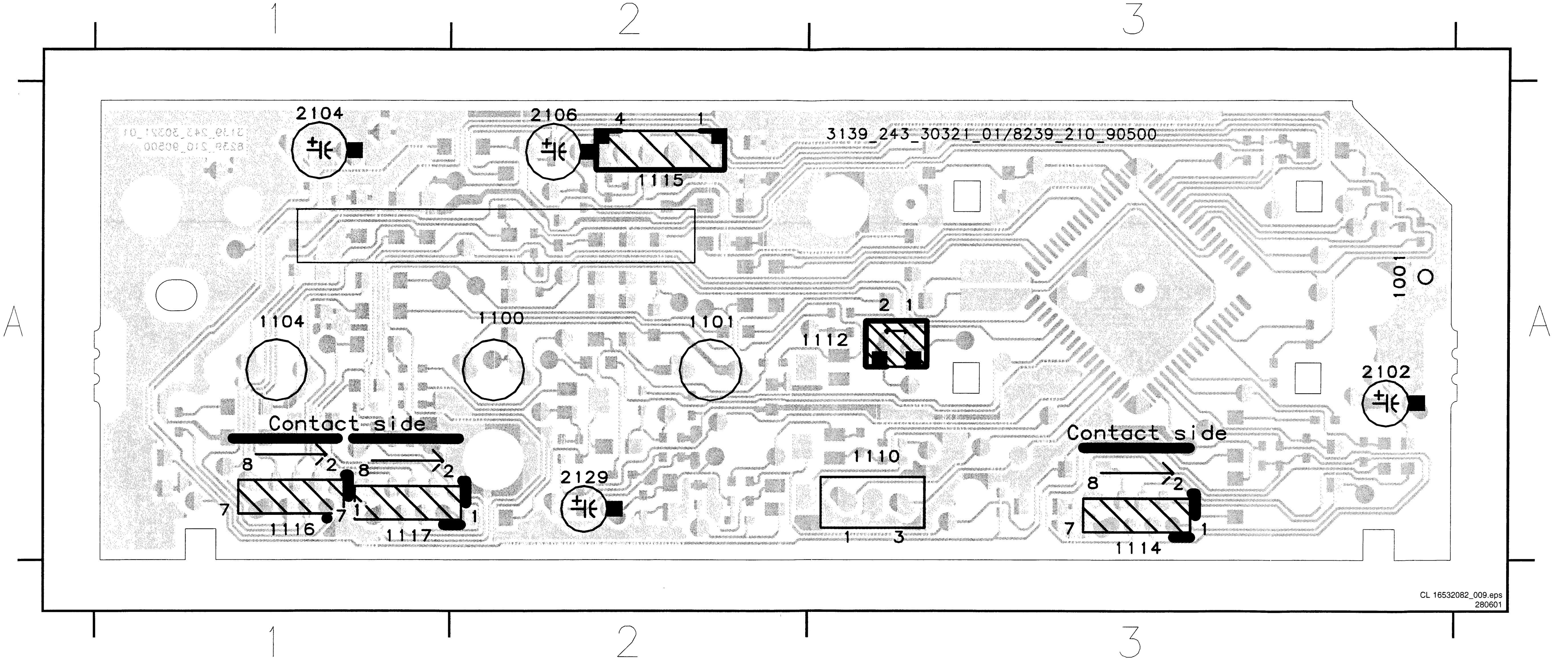
Display Board


D
DISPLAY PANEL
To 1113 of Control Panel C
1117
GND
Beeper
GND
SCL
STNY CTL
SDA
+5Vdigital
P50
To 1119 of Control Panel C
1116
S1
S2
S3
S4
IR
S5
STB_LED
STBY - LED CONTROL
+5Vstb
1104 Open/Close
1100 Stop
1101 Play
3115 4K7
3114 4K7
3113 4K7
3121 4K7
3130 10R
3133 10R
3103 10R
3105 10R
3174 4K7
1112
LED_ON 0V
7107 BC807-25
0V7
TO PSU
1115 EH-B
+5V digital
+5V stb
1001 RT-01T
Low Power STBY
2106 100u
3178 4K7
4003
4005
2115 22p
2114 22p
3122 10R
3125 10R
3116 4K7
3112 4K7
3177 4K7
3110 4K7
3109 4K7
3170 10K
3171 10K
In_P50
Out_P50
7104
TMP87PM48
P0
P3
P8
P4
P5
PWM 12-BIT
P1
P6
A/D CONV 10 BIT
P7
P2
VASS
VAREF
INST. DECODER
INST. REGISTER
I C/SIO
UART
INTERFACES SERIAL 8-BIT
TC5
TC3
COUNTERS TIMER 8-BIT
TC2
TC1
COUNTER TIMER 16-BIT
INTC
TIMER WATCHDOG
TIMER TIME BASE
INTERR. CTRL
GENERATOR CLOCK
LOW FR
HIGH FR
TIMING GENERATOR
STANDBY CONTROLLER
SYSTEM CONTROLLER
PROGRAM MEMORY
PROGRAM COUNTER
INTERRUPT CONTROLLER
REGISTER BANKS
DATA MEMORY
STACK POINTER
RBS
FLAGS
PSW
ALU
XOUT
XIN
TEST
RESET_
VSS
VDD
2V4
1V9
1110
3100 22K
3101 27K
3102 47K
2100 220p
6100 BAS316
2101 220p
3104 100K
7101 BC847B
3106 220R
2105 33n
LCD MODULE
1105
1114
VLCD
2102 1u
FMN
SCE
D/C
SDIN
SCLK
VDD
4002
3160 3K3
3161 3K3
3162 3K3
3163 3K3
3164 3K3
+5Vdigital
3175 180R
2104 100u
6101 3V zener
2202 33n
7102 BC847B
2203 1n
3141 10K
2129 10u
6104 BAS316
3144 100K
3140 10K
2128 1n
7108 BC847B
Reset
3136 1K
2201 33n
* Reserved
V DC vtg measured in STOP-MODE
Bare bd 3139 243 30321
CL 16532082_008.eps
280601

1001	B1
1100	A6
1101	A6
1104	A7
1110	D8
1112	B2
1114	C1
1115	B1
1116	A9
1117	A3
2100	D9
2101	E9
2102	D2
2104	E1
2105	E8
2106	B2
2114	B3
2115	B3
2128	E6
2129	E5
2201	E7
2202	E3
2203	E4
3100	D9
3101	D9
3102	D9
3103	A2
3104	E9
3105	A2
3106	E9
3109	B6
3110	B6
3112	B6
3113	A6
3114	A6
3115	A6
3116	B5
3121	A5
3122	B3
3125	B4
3130	A5
3133	B8
3136	E7
3140	E6
3141	E4
3144	E6
3160	E2
3161	E2
3162	E2
3163	E2
3164	E2
3170	C2
3171	C3
3174	A3
3175	E1
3177	B6
3178	B2
4002	D3
4003	C2
4005	C2
6100	D9
6101	E1
6104	E5
7101	E9
7102	E3
7104	C8
7107	B3
7108	E7

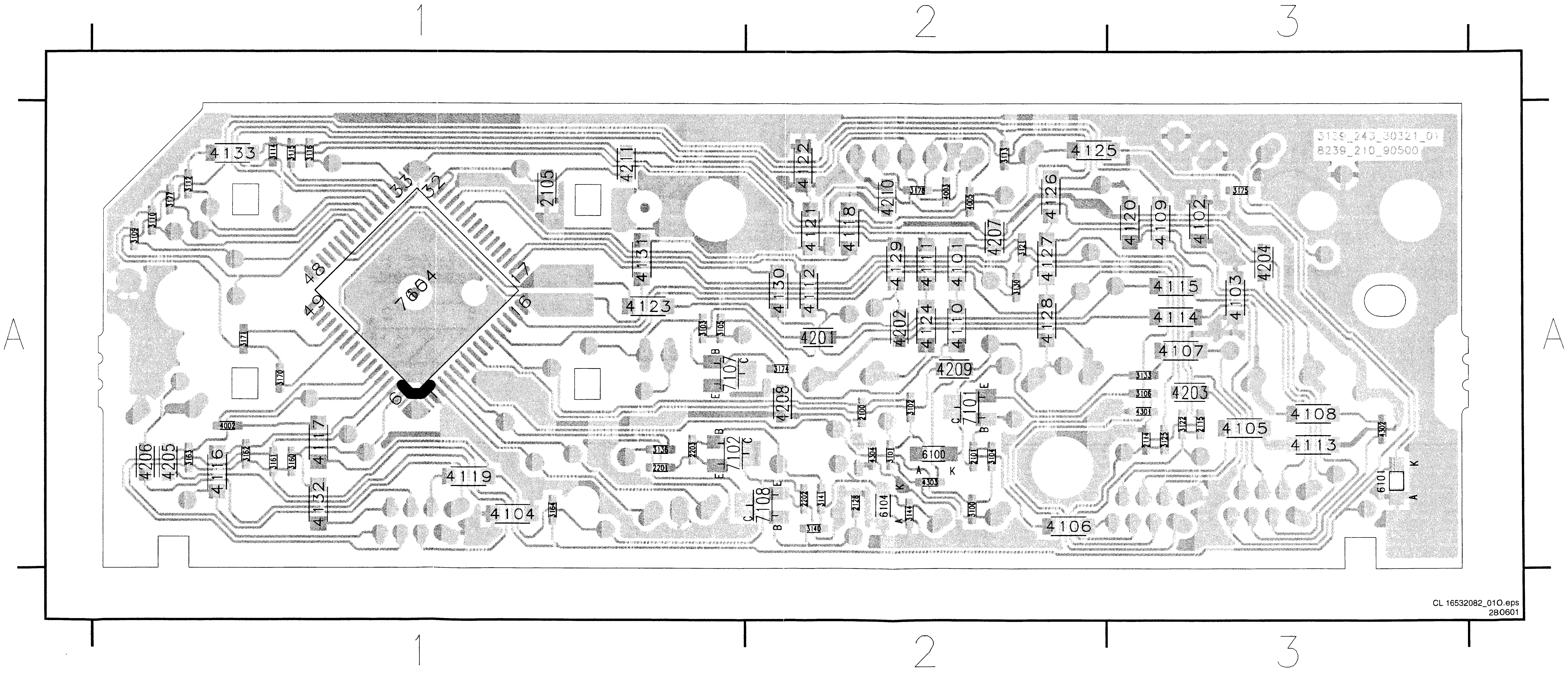
Layout Display Board (Top View)

1001	A3	1101	A2	1110	A3	1114	A3	1116	A1	2102	A3	2106	A2
1100	A2	1104	A1	1112	A3	1115	A2	1117	A1	2104	A1	2129	A2


1
2
3
A
A
2104
2106
4
1
1115
3139_243_30321_01/8239_210_90500
1001
1104
1100
1101
2 1
1112
2102
Contact side
Contact side
8
2
7
1116
8
2
7
1
1117
1
2129
1110
1
3
8
2
7
1
1114
CL 16532082_009.eps
280601
1
2
3

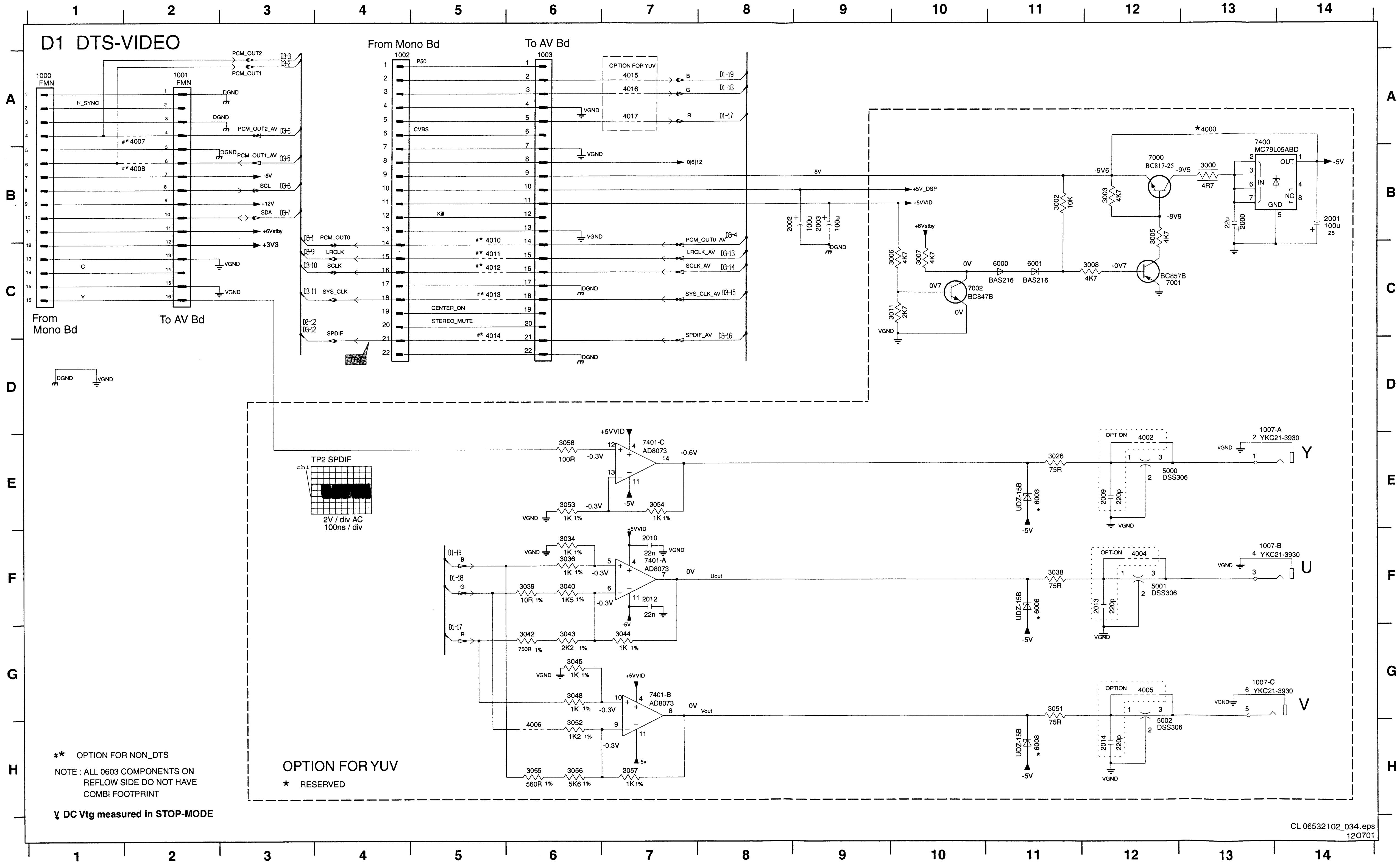
Layout Display Board (Bottom View)

2100	A2
2101	A2
2105	A1
2114	A3
2115	A3
2128	A2
2201	A1
2202	A2
2203	A1
3100	A2
3101	A2
3102	A2
3103	A1
3104	A2
3105	A1
3106	A3
3109	A1
3110	A1
3112	A1
3113	A2
3114	A1
3115	A1
3116	A1
3121	A2
3122	A3
3125	A3
3130	A2
3133	A3
3136	A1
3140	A2
3141	A2
3144	A2
3160	A1
3161	A1
3162	A1
3163	A1
3164	A1
3170	A1
3171	A1
3174	A2
3175	A3
3177	A1
3178	A2
4002	A1
4003	A2
4005	A2
4101	A2
4102	A3
4103	A3
4104	A1
4105	A3
4106	A2
4107	A3
4108	A3
4109	A3
4110	A2
4111	A2
4112	A2
4113	A3
4114	A3
4115	A3
4116	A1
4117	A1
4118	A2
4119	A1
4120	A3
4121	A2
4122	A2
4123	A1
4124	A2
4125	A2
4126	A2
4127	A2
4128	A2
4129	A2
4130	A2
4131	A1
4132	A1
4133	A1
4201	A2
4202	A2
4203	A3
4204	A3
4205	A1
4206	A1
4207	A2
4208	A2
4209	A2
4210	A2
4211	A1
4301	A3
4302	A3
4303	A2
4304	A2
6100	A2
6101	A3
6104	A2
7101	A2
7102	A1
7104	A1
7107	A1
7108	A2


1
2
3
A
A
3139 243 30321 01
8239 210 90500
4133
4125
4211
2105
4122
4210
4126
4120
4109
4102
4207
4204
4131
4123
4130
4112
4121
4118
4129
4111
4101
4124
4110
4202
4201
4209
4127
4128
4115
4114
4103
4107
4203
4208
7107
7101
7102
7108
6100
6101
6104
4105
4108
4113
4106
4119
4104
4117
4116
4132
4206
4205
7164
1
16
17
32
33
48
49
64

CL 16532082_010.eps
280601

DTS video


1
2
3
4
5
6
7
8
9
10
11
12
13
14
A
B
C
D
E
F
G
H
D1 DTS-VIDEO
PCM_OUT2
PCM_OUT1
D3-3
D3-2
1000
FMN
1001
FMN
H_SYNC
DGND
PCM_OUT2_AV
D3-6
#*4007
PCM_OUT1_AV
D3-5
#*4008
-8V
SCL
D3-8
+12V
SDA
D3-7
+6Vstby
+3V3
VGND
C
Y
From Mono Bd
To AV Bd
From Mono Bd
To AV Bd
1002
1003
P50
CVBS
Kill
CENTER_ON
STEREO_MUTE
OPTION FOR YUV
4015
4016
4017
B
G
R
D1-19
D1-18
D1-17
0|6|12
D3-1
PCM_OUT0
D3-9
LRCLK
D3-10
SCLK
D3-11
SYS_CLK
D2-12
D3-12
SPDIF
TP2
#* 4010
#* 4011
#* 4012
#* 4013
#* 4014
PCM_OUT0_AV
D3-4
LRCLK_AV
D3-13
SCLK_AV
D3-14
SYS_CLK_AV
D3-15
SPDIF_AV
D3-16
-8V
+5V_DSP
+5VVID
2002
100u
2003
100u
+6Vstby
3006
4K7
3007
4K7
3011
2K7
0V7
7002
BC847B
0V
6000
6001
BAS216
BAS216
3002
10K
3008
4K7
-0V7
3003
4K7
-9V6
7000
BC817-25
-9V5
3000
4R7
-8V9
3005
4K7
BC857B
7001
*4000
7400
MC79L05ABD
OUT
IN
NC
GND
-5V
22u
2000
2001
100u
25
TP2 SPDIF
ch1
2V / div AC
100ns / div
+5VVID
3058
100R
-0.3V
7401-C
AD8073
-0.6V
3053
1K 1%
3054
1K 1%
-5V
3034
1K 1%
3036
1K 1%
2010
22n
7401-A
AD8073
0V
Uout
3039
10R 1%
3040
1K5 1%
2012
22n
3042
750R 1%
3043
2K2 1%
3044
1K 1%
3045
1K 1%
3048
1K 1%
7401-B
AD8073
Vout
4006
3052
1K2 1%
3055
560R 1%
3056
5K6 1%
3057
1K 1%
-5v
3026
75R
UDZ-15B
6003
OPTION
4002
2009
220p
5000
DSS306
1007-A
YKC21-3930
Y
3038
75R
6006
4004
2013
220p
5001
DSS306
1007-B
YKC21-3930
U
3051
75R
6008
4005
2014
220p
5002
DSS306
1007-C
YKC21-3930
V
OPTION FOR YUV
* RESERVED

#* OPTION FOR NON_DTS

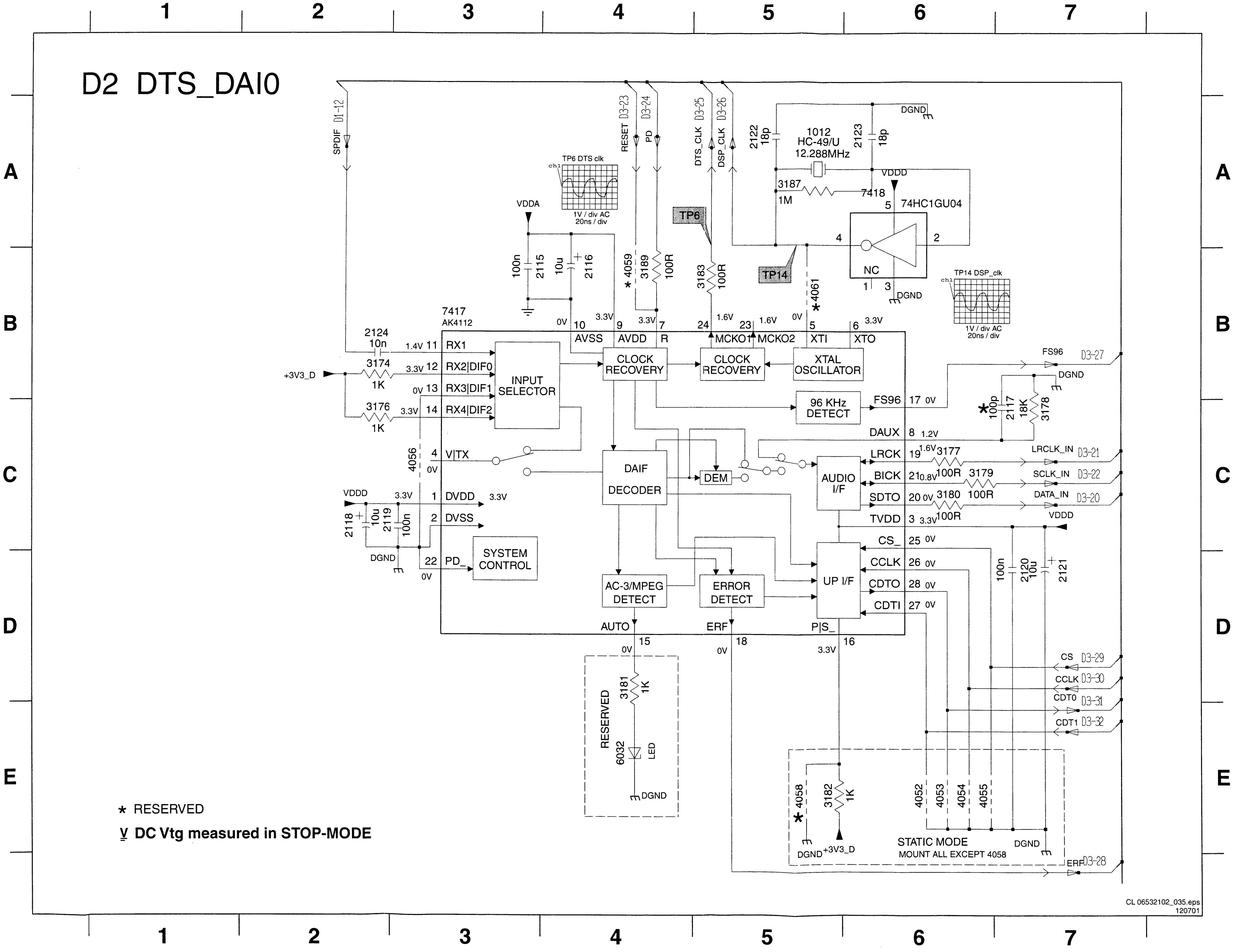
NOTE : ALL 0603 COMPONENTS ON REFLOW SIDE DO NOT HAVE COMBI FOOTPRINT

⊻ DC Vtg measured in STOP-MODE

CL 06532102_034.eps
120701

1000	A1
1001	A2
1002	A4
1003	A6
1007-A	D13
1007-B	F13
1007-C	G13
2000	B13
2001	B14
2002	B8
2003	B9
2009	E12
2010	F7
2012	F7
2013	F12
2014	H12
3000	B13
3002	B11
3003	B12
3005	B12
3006	C10
3007	C10
3008	C12
3011	C10
3026	E11
3034	F6
3036	F6
3038	F11
3039	F6
3040	F6
3042	G6
3043	G6
3044	G7
3045	G6
3048	G6
3051	G11
3052	H6
3053	E6
3054	E7
3055	H6
3056	H6
3057	H7
3058	E6
4000	A13
4002	E12
4004	F12
4005	G12
4006	H6
4007	A2
4008	B2
4010	C5
4011	C5
4012	C5
4013	C5
4014	D5
4015	A7
4016	A7
4017	A7
5000	E12
5001	F12
5002	H12
6000	C11
6001	C11
6003	E11
6006	F11
6008	H11
7000	B12
7001	C12
7002	C10
7400	A13
7401-A	F7
7401-B	G7
7401-C	E7
F000	A1
F001	B1
F003	A2
F004	A2
F005	A2
F006	A2
F007	A2
F008	B2
F009	B2
F010	B2
F011	B2
F012	B2
F013	B2
F014	B2
F015	C2
F016	C2
F017	C2
F018	C2
F019	B5
F020	C5
F021	C5
F022	C5
F023	A5
F024	A6
F025	A6
F026	A6
F027	A6
F028	A5
F029	A6
F030	B6
F031	B6
F032	B6
F033	B6
F034	B5
F035	B6
F036	B6
F037	C6
F038	C6
F039	C6
F040	C6
F041	C5
F042	C5
F043	C6
F044	D6
F045	C5
I022	B14
I029	E13
I030	E13
I031	F13
I032	F13
I033	G13
I034	H13
I036	E11
I037	F11
I038	G11
I039	C9
I040	C10
I041	C11
I042	B12

DTS DA I/O

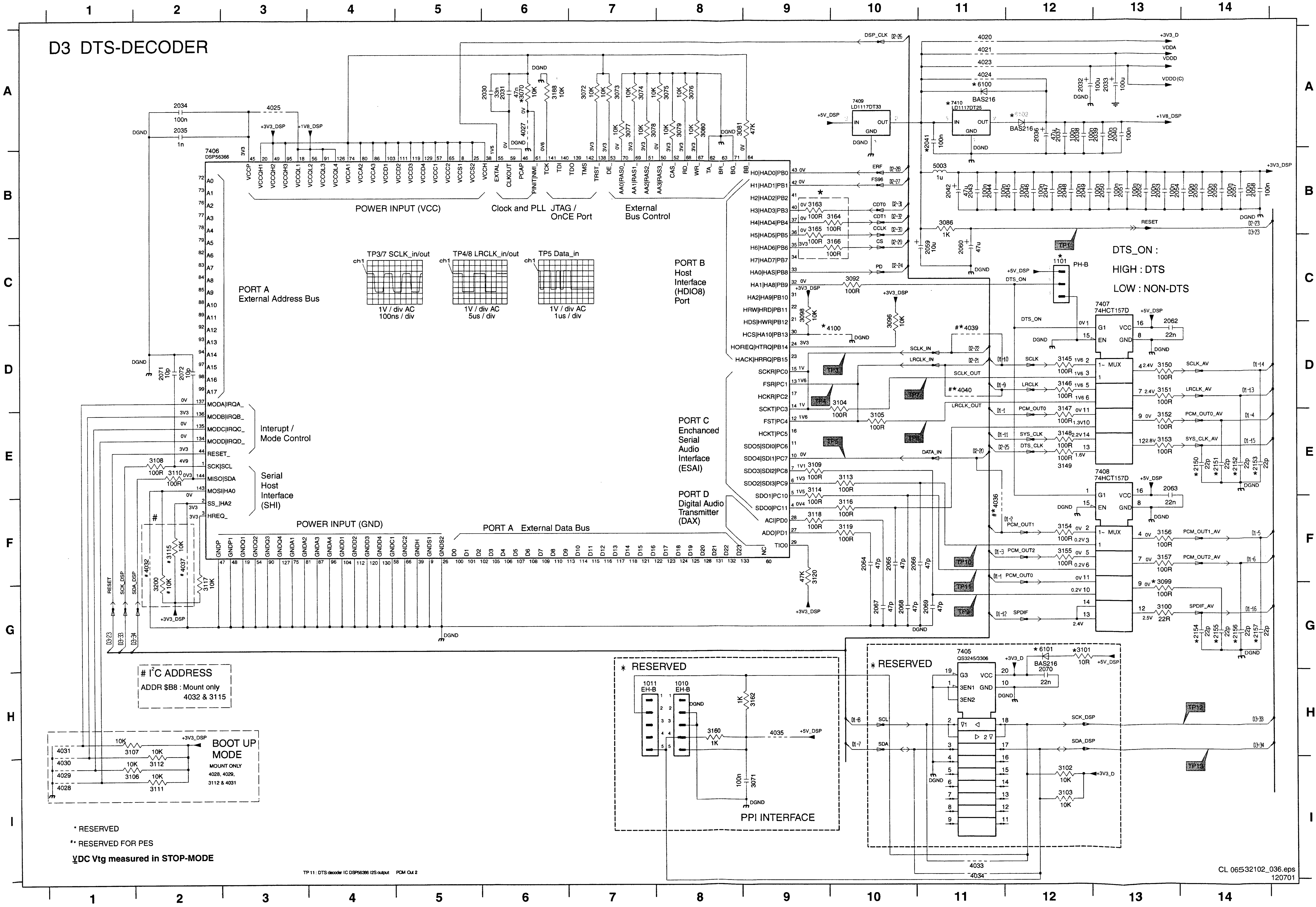

D2 DTS_DAI0
1 2 3 4 5 6 7
A B C D E
SPDIF D1-12
RESET D3-23
PD D3-24
DTS_CLK D3-25
DSP_CLK D3-26
DGND
2122 18p
1012 HC-49/U 12.288MHz
2123 18p
VDDD
3187 1M
7418
74HC1GU04
TP6 DTS clk
1V / div AC 20ns / div
TP6
TP14
TP14 DSP_clk
VDDA
100n 2115
10u 2116
* 4059
3189 100R
3183 100R
* 4061
NC
7417 AK4112
2124 10n
3174 1K
3176 1K
+3V3_D
AVSS AVDD R MCKO1 MCKO2 XTI XTO
RX1 RX2|DIF0 RX3|DIF1 RX4|DIF2
INPUT SELECTOR
CLOCK RECOVERY
CLOCK RECOVERY
XTAL OSCILLATOR
96 KHz DETECT
FS96
DAUX
4056
V|TX
DAIF DECODER
DEM
AUDIO I/F
LRCK BICK SDTO TVDD
DVDD DVSS
VDDD
2118 10u
2119 100n
DGND
PD_
SYSTEM CONTROL
CS_ CCLK CDTO CDTI
UP I/F
AC-3/MPEG DETECT
ERROR DETECT
AUTO ERF P|S_
FS96 D3-27
* 100p 2117
18K 3178
3177
3179 100R
3180 100R
LRCLK_IN D3-21
SCLK_IN D3-22
DATA_IN D3-20
100n 2120
10u 2121
CS D3-29
CCLK D3-30
CDT0 D3-31
CDT1 D3-32
RESERVED
3181 1K
6032 LED
* 4058
3182 1K
+3V3_D
4052 4053 4054 4055
STATIC MODE
MOUNT ALL EXCEPT 4058
ERF D3-28
CL 06532102_035.eps 120701

* RESERVED

V DC Vtg measured in STOP-MODE

1012	A5
2115	B3
2116	B4
2117	C7
2118	C2
2119	C3
2120	D7
2121	D7
2122	A5
2123	A6
2124	B2
3174	B2
3176	C2
3177	C6
3178	C7
3179	C6
3180	C6
3181	D4
3182	E5
3183	B5
3187	A5
3189	B4
4052	E6
4053	E6
4054	E6
4055	E6
4056	C3
4058	E5
4059	B4
4061	B5
6032	E4
7417	B3
7418	A6
I090	A6
I091	A5
I092	A5
I094	C2

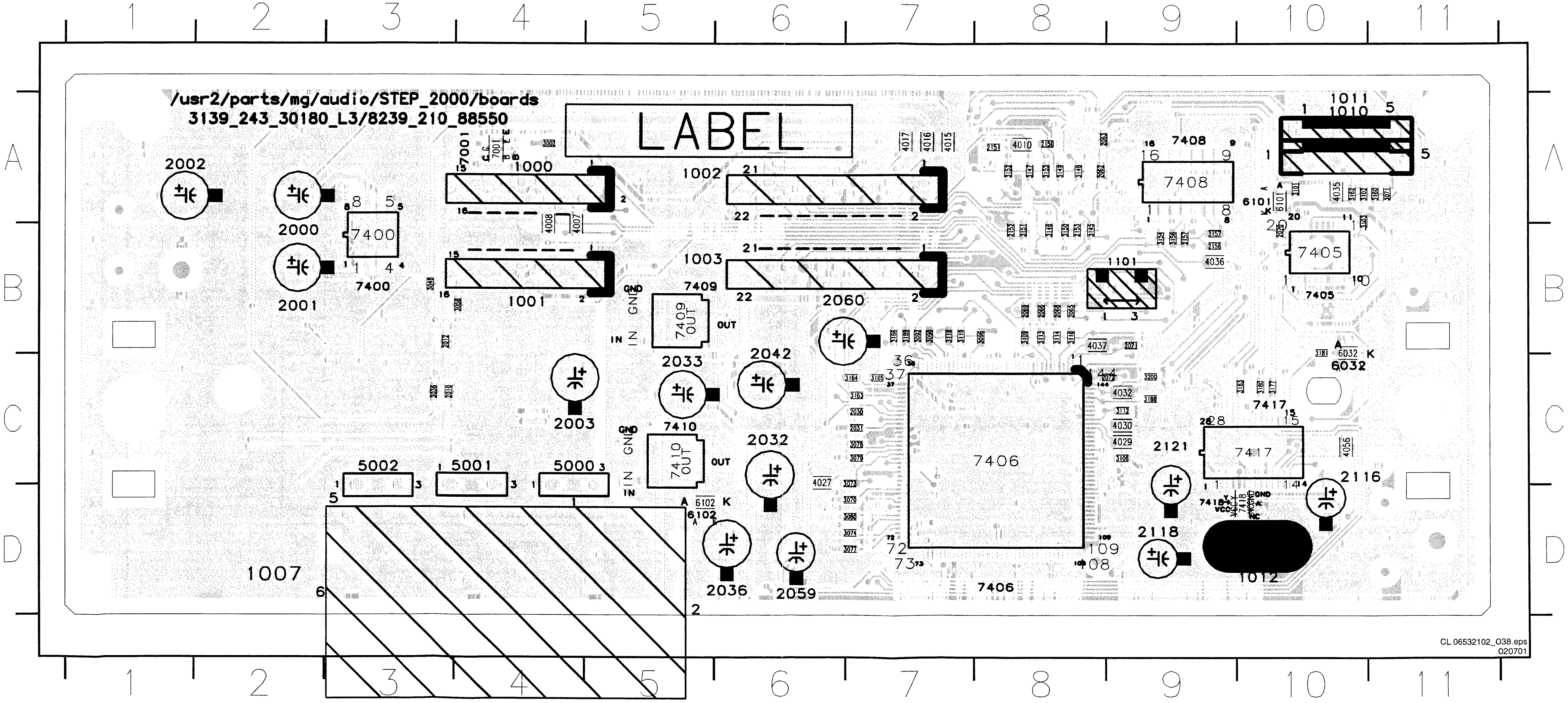
DTS Decoder


D3 DTS-DECODER
1 2 3 4 5 6 7 8 9 10 11 12 13 14
A B C D E F G H I
7406
DSP56366
POWER INPUT (VCC)
Clock and PLL
JTAG / OnCE Port
External Bus Control
PORT A External Address Bus
PORT B Host Interface (HDIO8) Port
PORT C Enchanced Serial Audio Interface (ESAI)
PORT D Digital Audio Transmitter (DAX)
POWER INPUT (GND)
PORT A External Data Bus
Interupt / Mode Control
Serial Host Interface (SHI)
TP3/7 SCLK_in/out
1V / div AC 100ns / div
TP4/8 LRCLK_in/out
1V / div AC 5us / div
TP5 Data_in
1V / div AC 1us / div
7409 LD1117DT33
7410 LD1117DT25
BAS216
+3V3_D
VDDA
VDDD
VDDD(C)
+1V8_DSP
+3V3_DSP
+5V_DSP
DGND
RESET
DSP_CLK
DTS_ON
DTS_ON :
HIGH : DTS
LOW : NON-DTS
1101 PH-B
7407 74HCT157D
7408 74HCT157D
SCLK_AV
LRCLK_AV
PCM_OUT0_AV
SYS_CLK_AV
PCM_OUT1_AV
PCM_OUT2_AV
SPDIF_AV
TP1 TP3 TP4 TP5 TP7 TP8 TP9 TP10 TP11 TP12 TP13
# I²C ADDRESS
ADDR $B8 : Mount only 4032 & 3115
BOOT UP MODE
MOUNT ONLY 4028, 4029, 3112 & 4031
* RESERVED
1011 EH-B
1010 EH-B
PPI INTERFACE
7405 QS3245/3306
SCK_DSP
SDA_DSP
* RESERVED
*• RESERVED FOR PES
V̲DC Vtg measured in STOP-MODE
TP 11 : DTS decoder IC DSP56366 I2S output PCM Out 2
CL 06532102_036.eps
120701

1010	H8
1011	H8
1101	C12
2030	A6
2031	A6
2032	A12
2033	A13
2034	A2
2035	A2
2036	A12
2037	A12
2038	A12
2039	A13
2040	A13
2041	A11
2042	B11
2043	B11
2044	B11
2045	B12
2046	B12
2047	B12
2048	B12
2049	B12
2050	B13
2051	B13
2052	B13
2053	B13
2054	B13
2055	B14
2056	B14
2057	B14
2058	B14
2059	C11
2060	C11
2062	D13
2063	E13
2064	F10
2065	F10
2066	F10
2067	G10
2068	G10
2069	G11
2070	H12
2071	D2
2072	D2
2150	E14
2151	E14
2152	E14
2153	E14
2154	G14
2155	G14
2156	G14
2157	G14
3070	A6
3071	I9
3072	A7
3073	A7
3074	A7
3075	A8
3076	A8
3077	A7
3078	A7
3079	A8
3080	A8
3081	A8
3086	B11
3092	C10
3096	C10
3098	C9
3099	G13
3100	G13
3101	G12
3102	I12
3103	I12
3104	D10
3105	E10
3106	H1
3107	H1
3108	E2
3109	E9
3110	E2
3111	H2
3112	H2
3113	E10
3114	E9
3115	F2
3116	F10
3117	F2
3118	F9
3119	F10
3120	F9
3145	D12
3146	D12
3147	E12
3148	E12
3149	E12
3150	D13
3151	D13
3152	E13
3153	E13
3154	F12
3155	F12
3156	F13
3157	F13
3160	H8
3162	H9
3163	B9
3164	B10
3165	B9
3166	C10
3188	A6
3200	F2
4020	A11
4021	A11
4023	A11
4024	A11
4025	A3
4027	A6
4028	H1
4029	H1
4030	H1
4031	H1
4032	F2
4033	I11
4034	I11
4035	H9
4036	F11
4037	F2
4039	D11
4040	D11
4100	D10
5003	B11
6100	A11
6101	G12
6102	A12
7405	G11
7406	B2
7407	C13
7408	E13
7409	A10
7410	A11
I050	A6
I054	A7
I055	A7
I056	A13
I057	A13
I058	A13
I059	A13
I060	A13
I061	B14
I062	B12
I063	D2
I064	D2
I065	E2
I066	E2
I067	F1
I068	F2
I069	E2
I070	G5
I071	B10
I072	B10
I073	B10
I074	C10
I075	D10
I076	D10
I077	D10
I078	E10
I079	C12
I080	D12
I081	E10
I082	E10
I083	F10
I084	F10
I085	F10
I086	H7
I087	H8
I088	I8
I089	E9
I100	H9
I101	E10
I102	F14
I103	E2
I104	D9

Layout DTS Panel (Top View)

1000	A4	2002	A1	2060	B6	2118	D9	3058	B4	3098	B7	3119	B7	3156	B9	3183	C10	4029	C9	6101	A10
1001	B4	2003	C5	2062	A8	2121	C9	3070	D7	3101	A10	3145	B8	3157	B9	3188	C9	4030	C9	6102	D5
1002	A6	2010	C3	2063	A8	2150	A8	3071	A11	3102	A10	3146	B8	3160	A11	3189	B7	4032	C9	7001	A4
1003	B6	2012	B3	2065	B8	2151	A8	3073	C7	3103	A10	3147	A8	3162	A10	3200	C9	4035	A10	7400	B3
1007	D4	2030	C7	2066	B8	2152	B8	3074	D7	3106	C9	3148	A8	3163	C7	4007	B4	4036	B9	7405	B10
1010	A10	2031	C7	2068	B8	2153	B8	3077	D7	3109	B8	3149	A8	3164	C7	4008	B4	4037	B8	7406	C8
1011	A10	2032	C6	2069	B8	2156	B9	3078	C7	3112	C9	3150	B8	3165	C7	4010	A8	4056	C10	7408	A9
1012	D10	2033	C5	2070	B10	2157	B9	3079	C7	3113	B8	3151	B8	3166	B7	4015	A7	5000	D4	7409	B5
1101	B9	2036	D6	2071	B9	3002	A4	3080	D7	3114	B8	3152	A8	3177	C10	4016	A7	5001	D4	7410	C5
2000	A2	2042	B6	2072	C9	3036	C3	3092	B7	3116	B8	3153	A8	3180	C10	4017	A7	5002	D3	7417	C10
2001	B2	2059	D6	2116	D10	3048	B3	3096	B8	3118	B7	3154	B9	3181	B10	4027	C6	6032	B10	7418	D10


1 2 3 4 5 6 7 8 9 10 11
A B C D
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3139_243_30180_L3/8239_210_88550
LABEL
2002
2000
2001
7400
2003
1000
1001
1002
1003
7001
3002
4008
4007
7409
IN
OUT
GND
2033
2042
2060
7410
2032
5002
5001
5000
1007
6102
2036
2059
4027
7406
2121
2118
2116
7417
7418
1012
1101
7405
7408
1011
1010
6101
6032
4036
4037
4032
4030
4029
4010
4017
4016
4015
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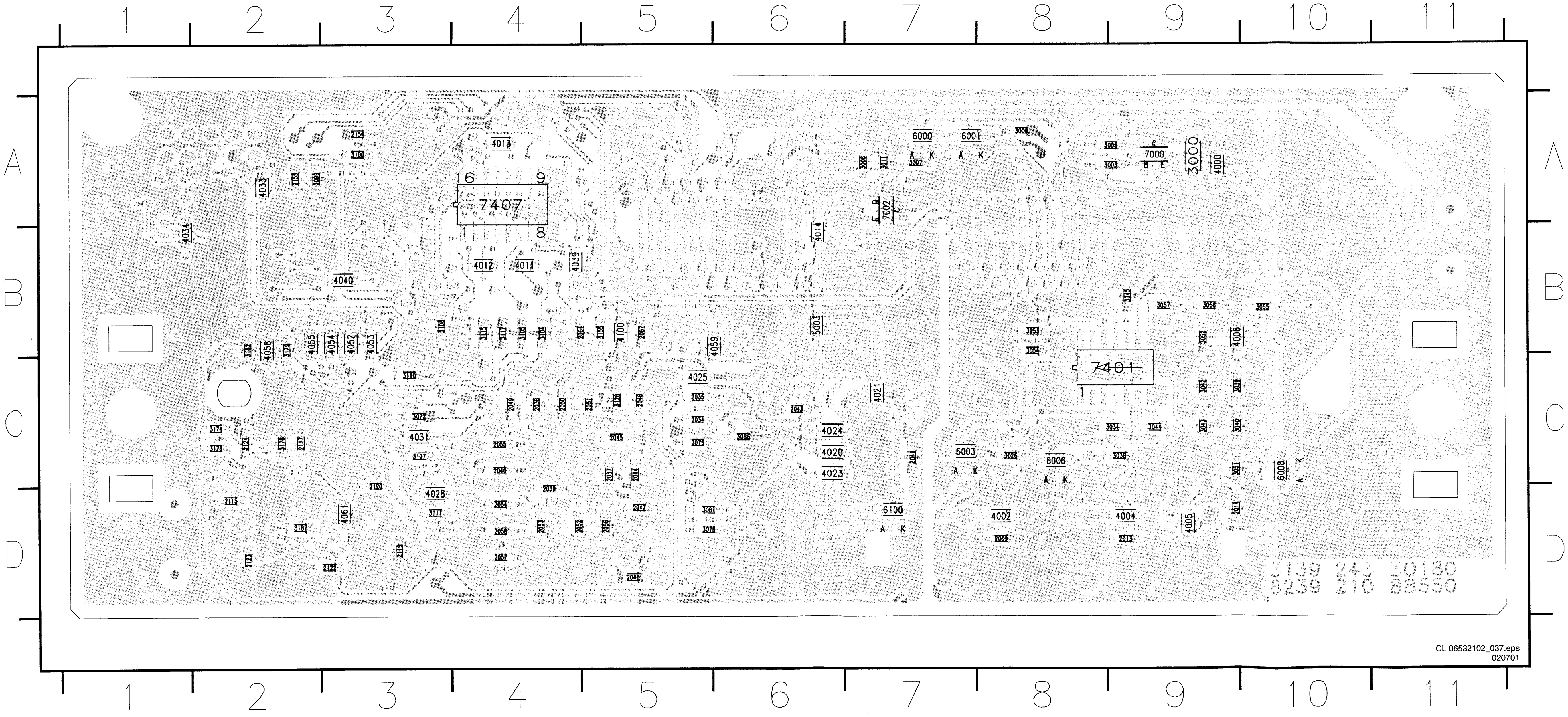
4056

CL 06532102_038.eps
020701

Layout DTS Panel (Bottom View)

2009	D8
2013	D9
2014	D9
2034	C5
2035	C5
2037	C5
2038	C4
2039	D4
2040	C4
2041	C7
2043	C6
2044	C5
2045	C5
2046	D5
2047	D5
2048	C5
2049	C4
2050	C4
2051	C5
2052	D4
2053	D4
2054	D4
2055	C4
2056	D5
2057	D4
2058	D4
2064	B4
2067	B5
2115	D2
2117	C2
2119	D3
2120	C3
2122	D3
2123	D2
2124	C2
2154	A3
2155	A2
3000	A9
3003	A9
3005	A9
3006	A7
3007	A7
3008	A8
3011	A7
3026	C8
3034	C9
3038	C9
3039	C9
3040	C9
3042	C9
3043	C9
3044	C9
3045	B9
3051	C9
3052	B9
3053	B8
3054	B8
3055	B10
3056	B9
3057	B9
3072	C3
3075	C5
3076	D5
3081	D5
3086	C6
3099	A2
3100	A3
3104	B4
3105	B4
3107	C3
3108	B3
3110	C3
3111	D3
3115	B4
3117	B4
3120	C5
3155	B5
3174	C2
3176	C2
3178	C2
3179	B2
3182	B2
3187	D2
4000	A9
4002	D8
4004	D9
4005	D9
4006	B9
4011	B4
4012	B4
4013	A4
4014	B6
4020	C6
4021	C7
4023	C6
4024	C6
4025	C5
4028	D3
4031	C3
4033	A2
4034	B1
4039	B4
4040	B3
4052	B3
4053	B3
4054	B3
4055	B2
4058	B2
4059	B6
4061	D3
4100	B5
5003	B6
6000	A7
6001	A7
6003	C7
6006	C8
6008	C10
6100	D7
7000	A9
7002	A7
7401	C9
7407	A4


1
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A
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C
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4013
7407
16
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4033
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4012
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4100
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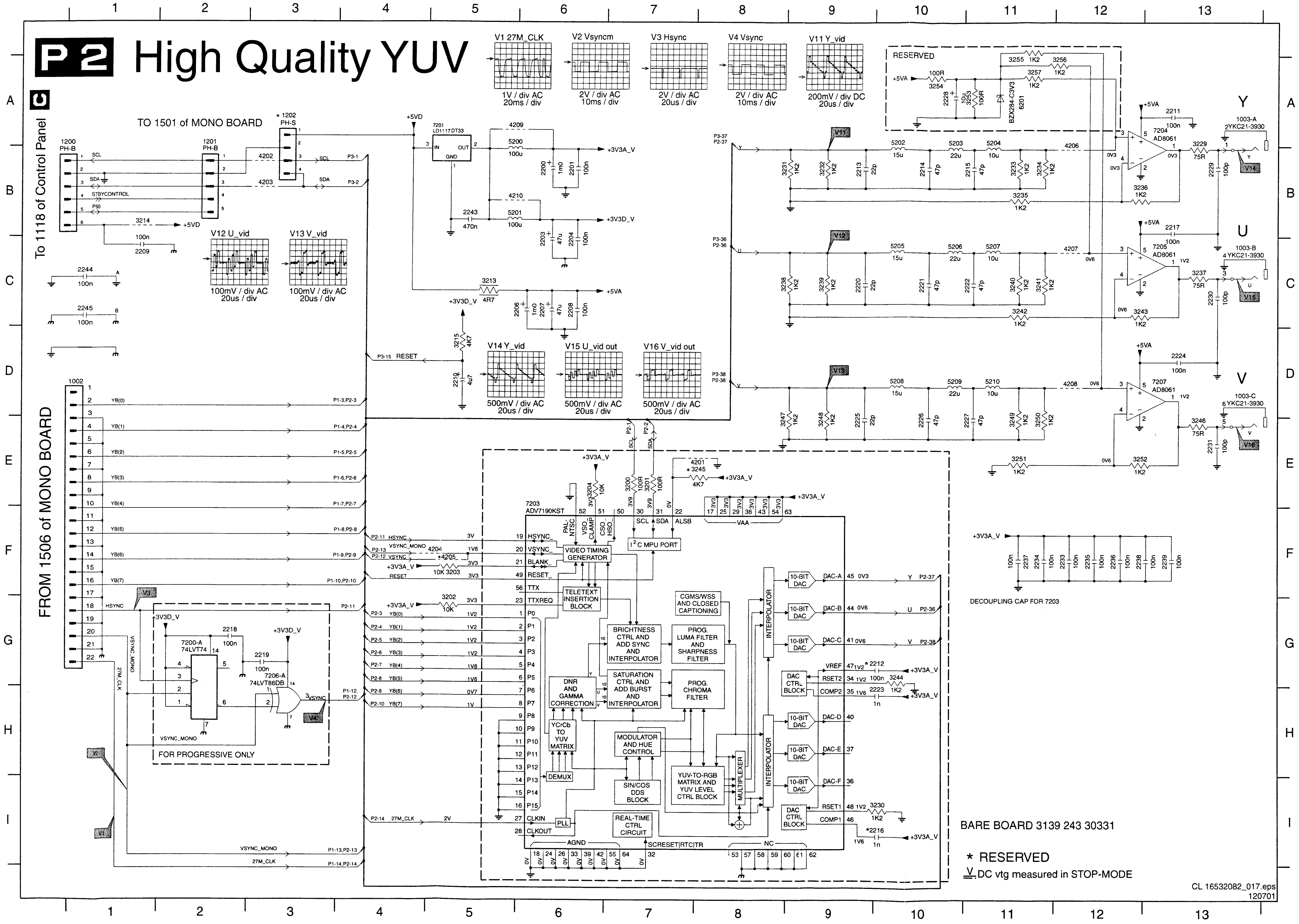
4031
4028
4061
4014
5003
4021
4024
4020
4023
6100
6000
6001
7002
7000
3000
4000
4006
7401
6003
6006
6008
4002
4004
4005
A
K
3139 243 30180
8239 210 88550

CL 06532102_037.eps
020701

High Quality YUV


P2 High Quality YUV
C
To 1118 of Control Panel
FROM 1506 of MONO BOARD
TO 1501 of MONO BOARD
1200 PH-B
1201 PH-B
1202 PH-S
1002
V1 27M_CLK
1V / div AC 20ms / div
V2 Vsyncm
2V / div AC 10ms / div
V3 Hsync
2V / div AC 20us / div
V4 Vsync
2V / div AC 10ms / div
V11 Y_vid
200mV / div DC 20us / div
V12 U_vid
100mV / div AC 20us / div
V13 V_vid
100mV / div AC 20us / div
V14 Y_vid
500mV / div AC 20us / div
V15 U_vid out
500mV / div AC 20us / div
V16 V_vid out
500mV / div AC 20us / div
RESERVED
7201 LD1117DT33
7200-A 74LVT74
7206-A 74LVT86DB
FOR PROGRESSIVE ONLY
7203 ADV7190KST
VIDEO TIMING GENERATOR
I2C MPU PORT
TELETEXT INSERTION BLOCK
CGMS/WSS AND CLOSED CAPTIONING
BRIGHTNESS CTRL AND ADD SYNC AND INTERPOLATOR
PROG. LUMA FILTER AND SHARPNESS FILTER
DNR AND GAMMA CORRECTION
SATURATION CTRL AND ADD BURST AND INTERPOLATOR
PROG. CHROMA FILTER
YCrCb TO YUV MATRIX
DEMUX
MODULATOR AND HUE CONTROL
SIN/COS DDS BLOCK
YUV-TO-RGB MATRIX AND YUV LEVEL CTRL BLOCK
MULTIPLEXER
INTERPOLATOR
10-BIT DAC
DAC CTRL BLOCK
PLL
REAL-TIME CTRL CIRCUIT
7204 AD8061
7205 AD8061
7207 AD8061
Y
U
V
1003-A YKC21-3930
1003-B YKC21-3930
1003-C YKC21-3930
+3V3A_V
DECOUPLING CAP FOR 7203

BARE BOARD 3139 243 30331

* RESERVED

V DC vtg measured in STOP-MODE

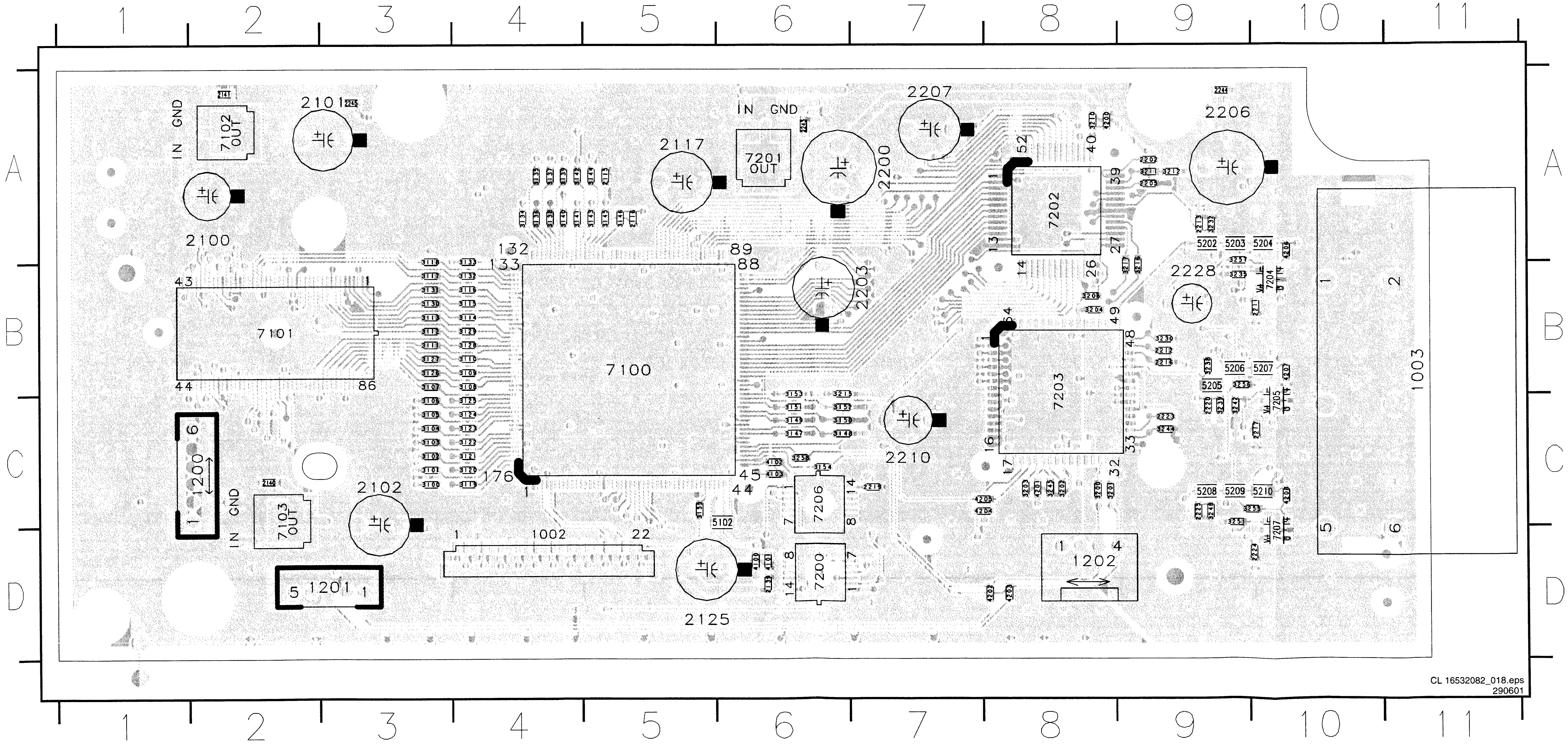
CL 16532082_017.eps
120701

1002	D1
1003-A	A13
1003-B	C13
1003-C	D13
1200	A1
1201	A2
1202	A3
2200	B6
2201	B6
2203	C6
2204	C6
2206	C6
2207	C6
2208	C6
2209	C1
2210	D5
2211	A13
2212	G10
2213	B9
2214	B10
2215	B11
2216	I10
2217	B13
2218	G2
2219	G3
2220	C9
2221	C10
2222	C11
2223	H10
2224	D13
2225	E9
2226	E10
2227	E11
2228	A10
2229	B13
2230	C13
2231	E13
2233	F12
2234	F11
2235	F12
2236	F12
2237	F11
2238	F12
2239	F13
2243	B5
2244	C1
2245	C1
3200	E7
3201	E7
3202	F5
3203	F5
3204	E6
3213	C5
3214	B1
3215	D5
3229	A13
3230	I10
3231	B8
3232	B9
3233	B11
3234	B11
3235	B11
3236	B12
3237	C13
3238	C8
3239	C9
3240	C11
3241	C11
3242	C11
3243	C12
3244	G10
3245	E8
3246	E13
3247	E8
3248	E9
3249	E11
3250	E11
3251	E11
3252	E12
3253	A11
3254	A10
3255	A11
3256	A12
3257	A11
4201	E8
4202	B3
4203	B3
4204	F5
4205	F5
4206	B12
4207	C12
4208	D12
4209	A5
4210	B5
5200	A5
5201	B5
5202	A10
5203	A10
5204	A11
5205	C10
5206	C10
5207	C11
5208	D10
5209	D10
5210	D11
6201	A11
7200-A	G2
7201	A5
7203	E6
7204	A13
7205	C13
7206-A	G3
7207	D13

ITEM NO	DIVERSITY TABLE FOR DIAGRAM P2 DESCRIPTION	DVDQ50 AP Progressive YUV	DVDQ50 EU High Quality YUV
2212	CER2 0603 X7R 16V 100N COL		X
2213	CER1 0603 NP0 50V 6P8 COL	X	
2213	CER1 0603 NP0 50V 27P COL		X
2214	CER1 0603 NP0 50V 22P COL	X	
2214	CER1 0603 NP0 50V 68P COL		X
2215	CER1 0603 NP0 50V 18P COL		
2216	CER2 0603 X7R 50V 1N COL		X
2218	CER2 0603 X7R 16V 100N COL	X	
2219	CER2 0603 X7R 16V 100N COL	X	
2220	CER1 0603 NP0 50V 6P8 COL	X	
2220	CER1 0603 NP0 50V 27P COL		X
2221	CER1 0603 NP0 50V 22P COL	X	
2221	CER1 0603 NP0 50V 68P COL		X
2222	CER1 0603 NP0 50V 18P COL	X	
2223	CER2 0603 X7R 50V 1N COL		X
2225	CER1 0603 NP0 50V 6P8 COL	X	
2225	CER1 0603 NP0 50V 27P COL		X
2226	CER1 0603 NP0 50V 22P COL	X	
2226	CER1 0603 NP0 50V 68P COL		X
2227	CER1 0603 NP0 50V 18P COL	X	
2229	CER1 0603 NP0 50V 100P COL		X
2230	CER1 0603 NP0 50V 100P COL		X
2231	CER1 0603 NP0 50V 100P COL		X
2232	CER2 0603 X7R 16V 100N COL	X	
2233	CER2 0603 X7R 16V 100N COL		X
2234	CER2 0603 X7R 16V 100N COL		X
2235	CER2 0603 X7R 16V 100N COL		X
2236	CER2 0603 X7R 16V 100N COL		X
2237	CER2 0603 X7R 16V 100N COL		X
2238	CER2 0603 X7R 16V 100N COL		X
2239	CER2 0603 X7R 16V 100N COL		X
3200	RST SM 0603 100R PM5 COL		X
3201	RST SM 0603 100R PM5 COL		X
3204	RST SM 0603 10K PM5 COL		X
3230	RST SM 0603 1K2 PM5 COL		X
3244	RST SM 0603 1K2 PM5 COL		X
3245	RST SM 0603 4K7 PM5 COL	X	
4204	RST SM 0603 JUMP. 0R05 COL		X
5202	FXDIND SM 0805 6U8 PM10 COL R	X	
5202	FXDIND SM 0805 22U PM20 COL R		X
5203	FXDIND SM 0805 10U PM10 COL R	X	
5203	RST SM 0805 JUMP. 0R05 COL R		X
5204	FXDIND SM 0805 2U2 PM10 COL R	X	
5204	FXDIND SM 0805 10U PM10 COL R		X
5205	FXDIND SM 0805 6U8 PM10 COL R	X	
5205	FXDIND SM 0805 22U PM20 COL R		X
5206	FXDIND SM 0805 10U PM10 COL R	X	
5206	RST SM 0805 JUMP. 0R05 COL R		X
5207	FXDIND SM 0805 2U2 PM10 COL R	X	
5207	FXDIND SM 0805 10U PM10 COL R		X
5208	FXDIND SM 0805 6U8 PM10 COL R	X	
5208	FXDIND SM 0805 22U PM20 COL R		X
5209	FXDIND SM 0805 10U PM10 COL R	X	
5209	RST SM 0805 JUMP. 0R05 COL R		X
5210	FXDIND SM 0805 2U2 PM10 COL R	X	
5210	FXDIND SM 0805 10U PM10 COL R		X
7200	IC SM 74LVT74DB (PHSE) R	X	
7203	IC SM ADV7190KST (ANA0) Y		X
7206	IC SM 74LVT86DB (PHSE) R	X	

Layout High Quality YUV (Top View)

1002	D4	2141	A2	2220	C9	3106	C3	3120	C4	3134	A4	3148	C6	3210	A8	3248	C9	4204	C8	5210	C10
1003	B11	2200	A7	2223	C9	3107	B3	3121	C4	3135	A4	3149	C6	3211	A9	3251	C9	4205	C8	7100	B5
1200	C2	2202	A9	2224	D10	3108	B4	3122	C4	3136	A4	3150	C6	3212	A9	3255	C10	4206	A10	7101	B2
1201	D3	2203	B7	2225	C9	3109	B4	3123	C4	3137	A4	3151	C6	3215	B6	3256	B9	4207	B10	7102	A2
1202	D8	2205	A9	2228	B9	3110	B4	3124	C4	3138	A4	3152	C6	3216	B9	3257	A9	4208	C10	7103	C2
2100	A2	2206	A9	2243	A6	3111	B3	3125	C4	3139	A4	3153	B6	3217	B9	3258	C6	5102	C6	7200	D6
2101	A3	2207	A7	2244	A9	3112	B3	3126	B3	3140	A4	3154	C6	3230	B9	4100	D6	5202	A9	7201	A6
2102	C3	2210	C7	2245	A3	3113	B3	3127	B3	3141	A4	3155	C5	3232	A9	4101	D6	5203	A9	7202	A8
2115	A5	2211	B10	3100	C3	3114	B4	3128	B4	3142	A4	3200	C8	3235	B9	4102	C6	5204	A10	7203	B8
2116	A5	2212	B9	3101	C3	3115	B4	3129	B4	3143	A5	3201	C8	3238	B9	4103	C6	5205	B9	7204	B10
2117	A5	2213	A9	3102	C3	3116	B4	3130	B3	3144	A5	3202	C8	3239	C9	4200	A8	5206	B9	7205	C10
2125	D5	2216	B9	3103	C3	3117	B3	3131	B3	3145	A5	3203	C8	3242	C9	4201	C8	5207	B10	7206	C6
2139	D6	2217	C10	3104	C3	3118	A3	3132	B4	3146	A5	3204	B8	3244	C9	4202	D8	5208	C9	7207	D10
2140	C2	2219	C7	3105	C3	3119	C4	3133	A4	3147	C6	3206	B8	3245	C8	4203	D8	5209	C9		


1
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7
8
9
10
11
A
B
C
D
7102 OUT
IN GND
2101
2100
7101
43
44
86
1200
1201
7103 OUT
2102
132
133
89
88
7100
176
45
44
1002
22
2117
7201 OUT
2200
2207
2203
2210
2125
7206
7200
5102
52
40
39
7202
13
14
26
27
64
49
48
7203
16
17
32
33
1202
2206
2228
5202
5203
5204
5206
5207
5205
5208
5209
5210
7204
7205
7207
1003

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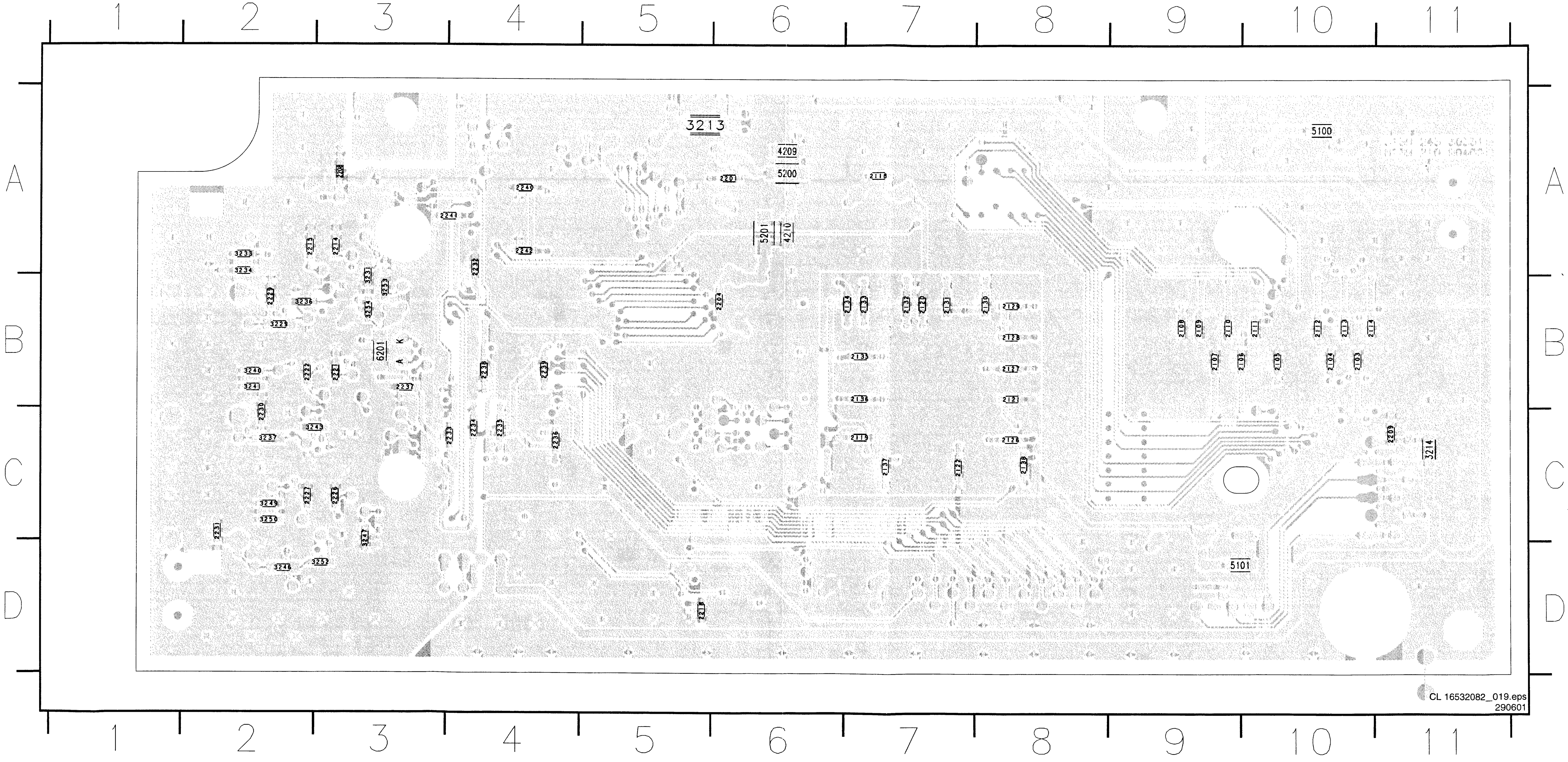
290601

Layout High Quality YUV (Bottom View)

2103	B10
2104	B10
2105	B10
2106	B10
2107	B9
2108	B9
2109	B9
2110	B9
2111	B10
2112	B10
2113	B10
2114	B10
2118	A7
2119	C7
2120	B7
2121	B8
2122	C7
2126	C8
2127	B8
2128	B8
2129	B8
2130	B8
2131	B7
2132	B7
2133	B7
2134	B7
2135	B7
2136	B7
2137	C7
2138	C8
2201	A6
2204	B6
2208	A3
2209	C11
2214	A3
2215	A2
2218	D5
2221	B3
2222	B2
2226	C3
2227	C2
2229	B2
2230	C2
2231	C2
2232	A4
2233	C4
2234	C4
2235	C4
2236	C4
2237	B3
2238	B4
2239	B4
2240	A4
2241	A4
2242	A4
3213	A5
3214	C11
3229	B2
3231	B3
3233	A2
3234	A2
3236	B2
3237	C2
3240	B2
3241	B2
3243	C3
3246	D2
3247	C3
3249	C2
3250	C2
3252	D3
3253	B3
3254	B3
4209	A6
4210	A6
5100	A10
5101	D9
5200	A6
5201	A6
6201	B3



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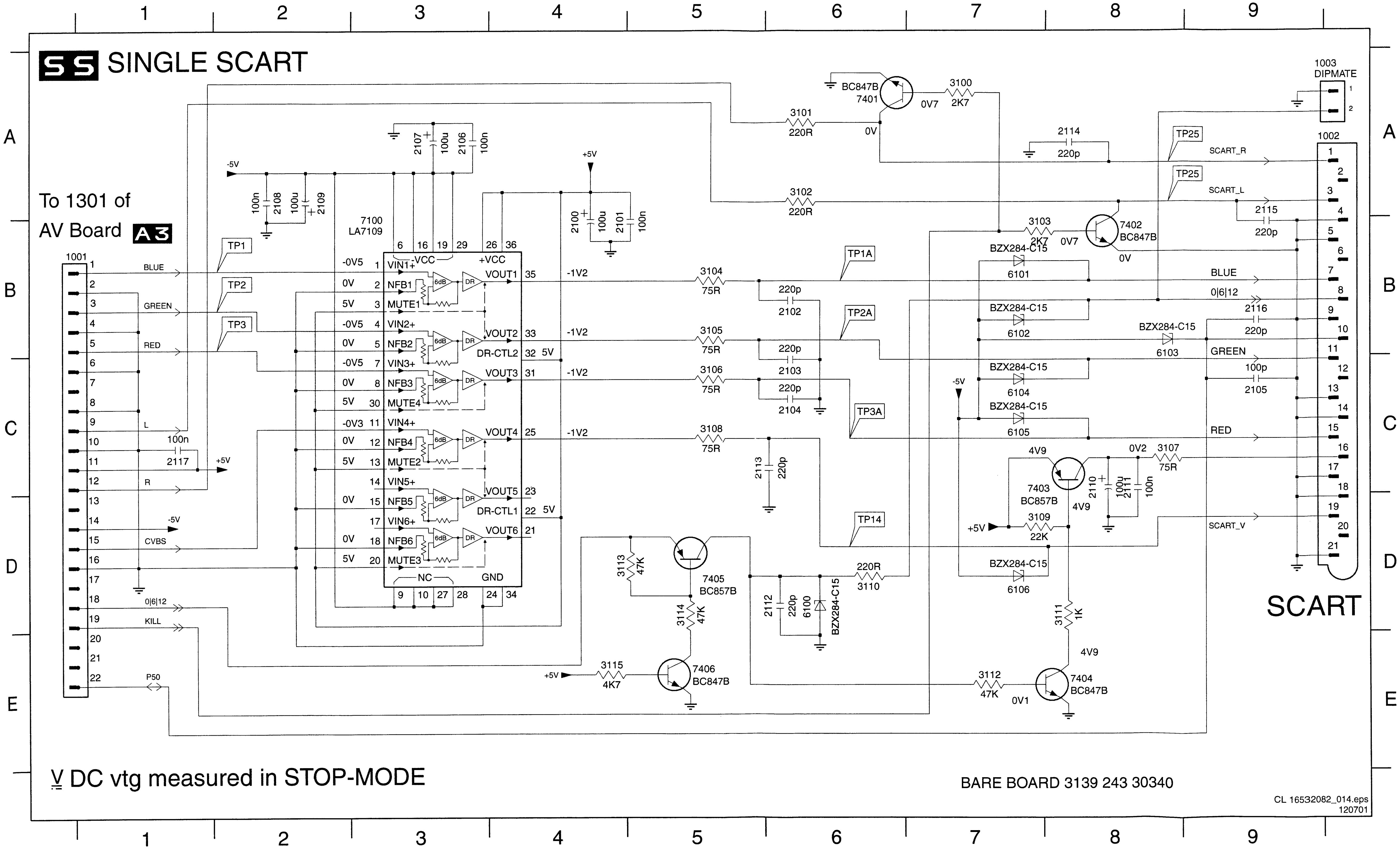
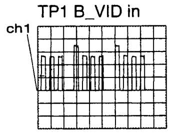
290601

Single SCART


SS SINGLE SCART
To 1301 of AV Board A3
1001
BLUE
GREEN
RED
L
R
CVBS
KILL
P50
0|6|12
100n 2117
+5V
-5V
TP1
TP2
TP3
7100 LA7109
VIN1+ NFB1 MUTE1 VIN2+ NFB2 VIN3+ NFB3 MUTE4 VIN4+ NFB4 MUTE2 VIN5+ NFB5 VIN6+ NFB6 MUTE3
VOUT1 VOUT2 DR-CTL2 VOUT3 VOUT4 VOUT5 DR-CTL1 VOUT6
-VCC +VCC NC GND
6dB DR
-0V5 0V 5V -0V3 -1V2
2107 100u 2106 100n
100n 2108 100u 2109
2100 100u 2101 100n
BC847B 7401
3100 2K7
3101 220R
3102 220R
0V7 0V
2114 220p
TP25
SCART_R
SCART_L
2115 220p
3103 2K7
7402 BC847B
BZX284-C15 6101
BZX284-C15 6102
BZX284-C15 6103
BZX284-C15 6104
BZX284-C15 6105
BZX284-C15 6106
TP1A TP2A TP3A TP14
3104 75R
3105 75R
3106 75R
3108 75R
220p 2102
220p 2103
220p 2104
2113 220p
2116 220p
100p 2105
4V9
7403 BC857B
0V2 3107 75R
2110 100u 2111 100n
+5V 3109 22K
SCART_V
7405 BC857B
3113 47K
3114 47K
220R 3110
2112 220p 6100 BZX284-C15
3115 4K7
7406 BC847B
3111 1K
3112 47K
0V1
7404 BC847B
1003 DIPMATE
1002
SCART
V DC vtg measured in STOP-MODE
BARE BOARD 3139 243 30340
CL 16532082_014.eps 120701

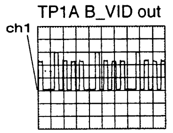
1001	B1
1002	A9
1003	A9
2100	B4
2101	B4
2102	B6
2103	C6
2104	C6
2105	C9
2106	A3
2107	A3
2108	A2
2109	A2
2110	C8
2111	C8
2112	D6
2113	C5
2114	A8
2115	A9
2116	B9
2117	C1
3100	A7
3101	A6
3102	A6
3103	B7
3104	B5
3105	B5
3106	C5
3107	C8
3108	C5
3109	D7
3110	D6
3111	D8
3112	E7
3113	D4
3114	D5
3115	E4
6100	D6
6101	B7
6102	B7
6103	B8
6104	C7
6105	C7
6106	D7
7100	B3
7401	A6
7402	B8
7403	C7
7404	E8
7405	D5
7406	E5

TP1 B_VID in



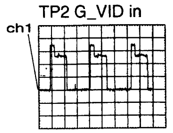
200mV / div AC
20us / div

TP1A B_VID out



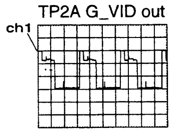
500mV / div AC
20us / div

TP2 G_VID in



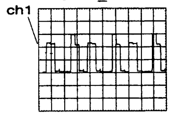
200mV / div AC
20us / div

TP2A G_VID out



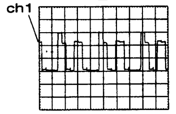
500mV / div AC
20us / div

TP3A R_VID in



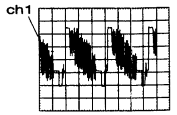
200mV / div AC
20us / div

TP3A R_VID out



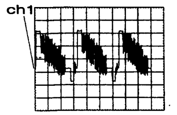
500mV / div AC
20us / div

TP4 CVBS



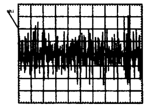
200mV / div AC
20us / div

TP14 CVBS-out



500mV / div AC
20us / div

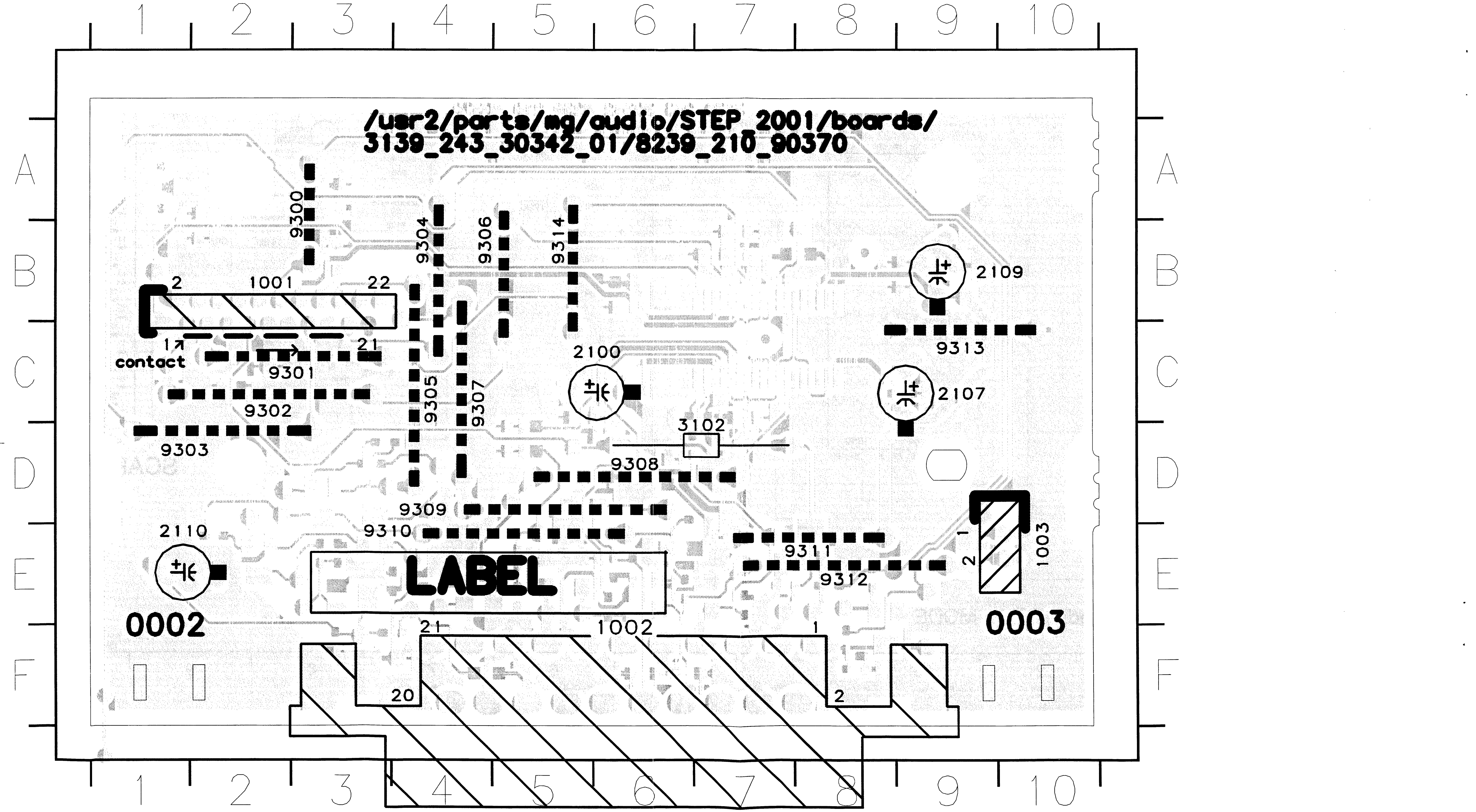
TP25 Audio Pinknoise out



200mV / DIV AC
10ms / DIV

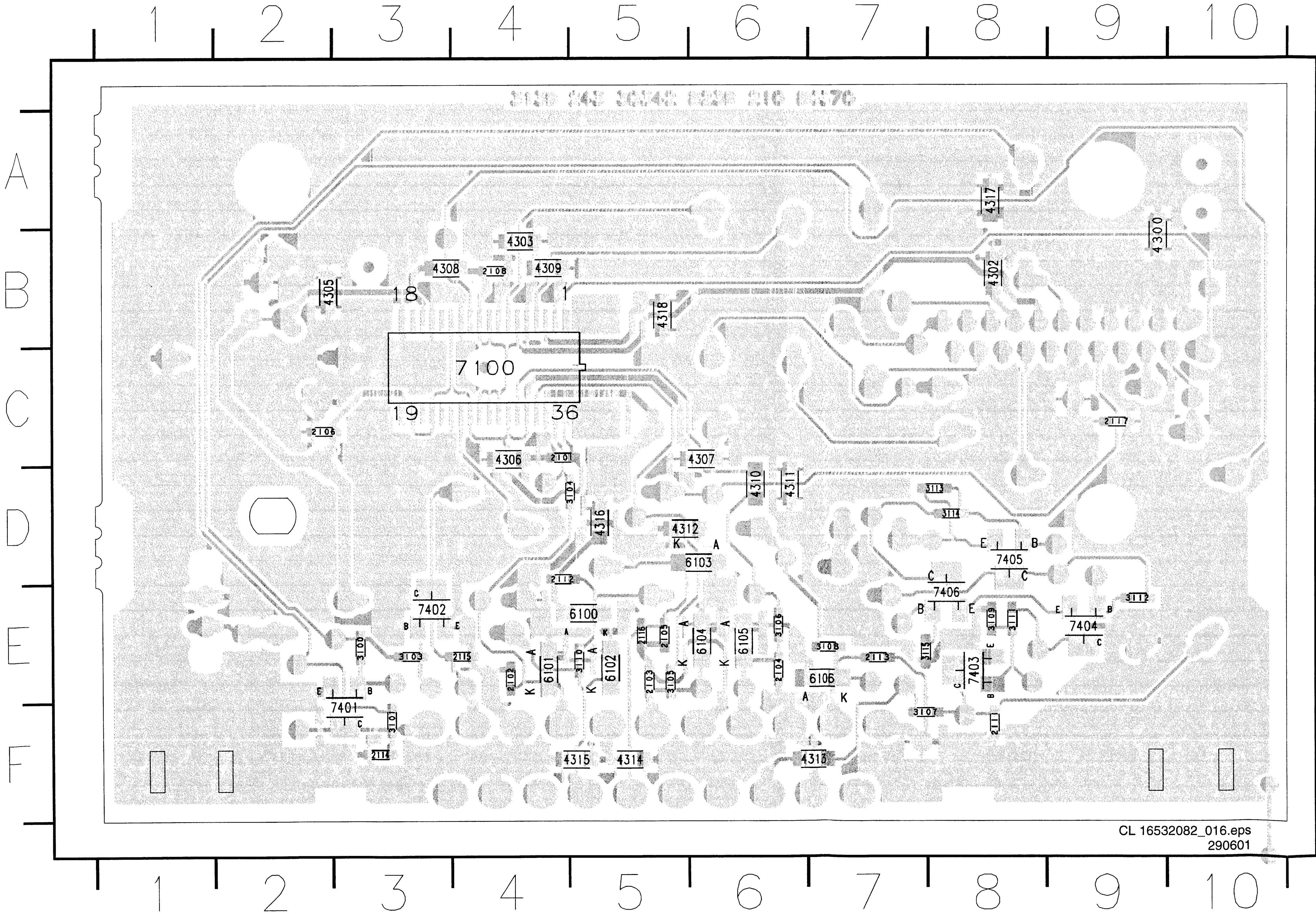
Layout SCART Board (Top View)

1001	B2
1002	F6
1003	E10
2100	C6
2107	C9
2109	B10
2110	E1
3102	D7
9300	A3
9301	C3
9302	C2
9303	D1
9304	B4
9305	C4
9306	B4
9307	C4
9308	D6
9309	D4
9310	E3
9311	E8
9312	E8
9313	C9
9314	B5


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
/usr2/parts/mg/audio/STEP_2001/boards/
3139_243_30342_01/8239_210_90370
9300
9304
9306
9314
2
1001
22
1
21
contact
9301
9302
9303
9305
9307
2100
2109
9313
2107
3102
9308
9309
9310
2110
LABEL
9311
9312
1
2
1003
0002
0003
21
1002
1
20
2

Layout SCART Board (Bottom View)

2101	C4	2112	D4	3103	E3	3111	E8	4305	B2	4313	F7	6102	E5	7403	E8
2102	E4	2113	E7	3104	D5	3112	E9	4306	C4	4314	F5	6103	D6	7404	E9
2103	E5	2114	F3	3105	E5	3113	D8	4307	C6	4315	F5	6104	E6	7405	D8
2104	E6	2115	E4	3106	E6	3114	D8	4308	B3	4316	D5	6105	E6	7406	E8
2105	E5	2116	E5	3107	F7	3115	E7	4309	B4	4317	A8	6106	E7		
2106	C2	2117	C9	3108	E7	4300	B9	4310	D6	4318	B5	7100	C4		
2108	B4	3100	E3	3109	E8	4302	B8	4311	D6	6100	E5	7401	F3		
2111	F8	3101	F3	3110	E5	4303	B4	4312	D5	6101	E4	7402	E3		


1
2
3
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5
6
7
8
9
10
A
B
C
D
E
F
4317
4300
4303
4308
2108
4309
4305
18
1
4302
4318
7100
19
36
2117
2106
4306
2101
4307
3104
4310
4311
3113
3114
4316
4312
K
A
6103
E
B
7405
C
2112
C
7406
B
E
3112
C
7402
B
E
6100
A
K
2116
2105
6104
6105
3106
3109
3111
E
B
7404
C
3100
3103
2115
3110
A
6101
K
6102
2103
3105
2104
3108
2113
3115
7403
6106
A
K
E
B
7401
C
3101
2114
3107
2111
4315
4314
4313

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Personal Notes:

Personal Notes:

8. Alignments

No electrical alignments available

9. Circuit Descriptions and List of Abbreviations

9.1 Index

9.1.1 Index
9.1.2 Introduction
9.1.3 Power Supply
9.1.4 Loader/Monoboard
9.1.5 Data Processing
9.1.6 Control and Display
9.1.7 Abbreviations

Notes:

- Figures can deviate slightly from the actual situation, due to different set executions.
- For a good understanding of the following circuit descriptions, please use the diagrams in chapter 6 and 7. Where necessary, you will find a separate drawing for clarification.

9.2 Introduction

9.2.1 Features

The Step2001 range is a 3rd generation DVD player. It contains many new features, such as:

- MP3 playability,
- Digital Crystal Clear,
- DTS decoding,
- Progressive/High Quality YUV,
- Component video out,
- Smart picture,
- Zoom + perfect still,
- Disc lock,
- 5 Disc resume,
- CD-RW compatible.

9.2.2 Differences

The Step2001 has, compared to its predecessor the Step2000, a new DVD module called the SD3.x.
The main difference between the SD1/2 and the SD3 is the new main DVD processor (Sti5508/STi5580), which has enhanced audio features like MP3, colour setting, NTSC/PAL conversion and DTS decoder (only for STi5580).

All A/V functional requirements are the same as for the DVD 2B except for:

- no YUV matrix, colour setting IC, Karaoke IC and headphone,
- a new audio DAC, SCART board and Progressive Scan board,
- a re-used A/V board (however some models have a new Front Audio DAC).

All display functional requirements are the same as the DVD 2B except for:

- a new LCD display.

9.2.3 Modules

The main modules are:

- Power Supply Unit (PSU).
- SD3.x DVD module (Loader VAL6011 + Monoboard).
- Digital Theatre Sound (DTS) Board (only for SD3.0 with host processor Sti5508).
- Audio Video / (A/V) Board.
- Display/Control Board.
- SCART Board (only for Europe).
- Progressive Scan Board (only for Q50).

Note:
There are two different SD3.x executions:

- SD3.0 refers to DVD module with host processor Sti5508 and
- SD3.1 refers to DVD module with host processor Sti5580.

9.2.4 Service

This SD3.x has the same ComPair connector as in all previous DVD generations.
Flashing of the application SW is now possible with the ComPair cable and a CDR disc (except for sets with Mask-ROM software).

9.3 Power Supply

Note: There are two different Power Supply modules used, due to different suppliers (Billion or EPM). The 'Billion' module is used in AP and USA players, while the 'EPM' module is used for the other regions.
Both modules are described separately.

9.3.1 'Billion' Power Supply Module (3139 248 70851)

Introduction
This supply is a Switching Mode Power Supply (SMPS), which uses the control IC UC3842 to produce pulses to drive the power 'switch' (MOSFET). The regulation of the 'duty cycle', controls the supply output, at a fixed switching frequency (approximately 58 kHz, determined by the RC timing components at pin 4).

The UC3842 (item IC1) is a high performance, fixed frequency, current mode controller for DC-to-DC converter applications. This integrated circuit features:

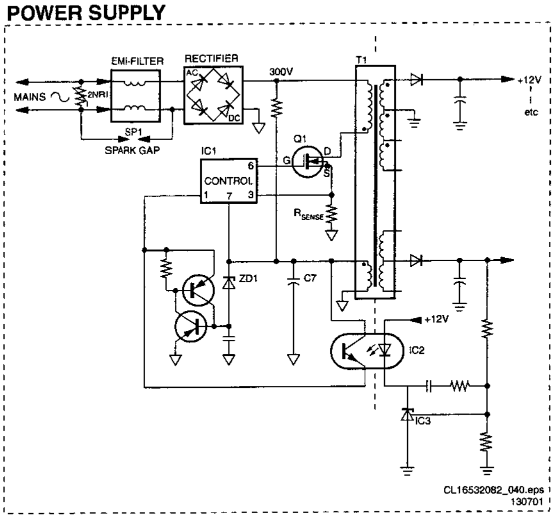
- a trimmed oscillator for precise duty cycle control,
- a temperature compensated reference,
- a high gain error amplifier,
- a current sensing comparator and
- a high current totem pole output ideally suited for driving a power MOSFET (item Q1).

Also included are protective features consisting of input and reference under-voltage lockouts each with hysteresis, cycle by cycle current limiting, programmable output dead time and a latch for single pulse metering.

Output Voltages

- +12V_stdby (present during standby).
- +5V_ stdby (present during standby).
- +5V_digital (will switch off via Q3 during Standby).
- +5V_AV (will switch off via Q3 during Standby).
- 3V3 (present during standby).
- -5V (will switch off during standby).

Operation



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130701

Figure 9-1

Mains Input Circuit

The bridge rectifier (D1-D4) rectifies the mains voltage, after which C5 smoothens this voltage. The DC voltage across this capacitor is the DC input voltage (approximately 300 V), to pin 1 of transformer T1.

The mains input also consists of a (differential mode) lightning protection ZNR1 and a (common mode) lightning protection SP1 (spark gap).

Start-up and Take-over Circuitry

With the mains voltage input, C7 will charge. When this voltage (at pin 7 of IC1), reaches the start-up threshold of min. 14.5V, the control circuit starts to operate.

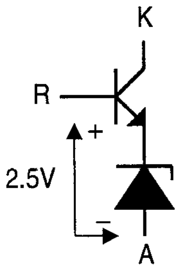
After start-up, IC1 requires a sinking current, which the start-up circuitry cannot deliver. Therefor a take-over circuitry (a coupled winding of transformer T1) is present. The voltage at this point will take over the supply voltage at pin 7 of the IC. If the take-over circuit does not function, the IC will switch off again at the minimal operating voltage of 8.5 V. The whole operation cycle will repeat itself with audible hiccup sound if take-over is not present.

Secondary Voltage Sensing

The secondary voltage regulating circuit comprises of opto-coupler IC2 (which isolates the error signal from the control IC on the primary side), and a reference component IC3 (TL431).

The reference component has two functions:

- a very stable and accurate reference diode
- a high gain amplifier.



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130799

Figure 9-2

When the output voltage increases (due to a reduction in the load), the voltage across R23 increases to above the internal reference voltage of 2.5 V. IC3 will conduct and the current through the opto-coupler will increase. This results in an increase of the voltage at pin 2 of IC1, which will reduce the on time of FET Q1.

In the event of an output voltage decrease (due to an increase in the load), the control circuit will operate in the opposite way.

Primary Current Sensing

The current through FET Q1, will result in a voltage drop across R3A (R_{SENSE}). This line goes to pin 3 of IC1, which is the current sense input. The higher the input voltage, the more the primary current is limited. In this way, the maximum output power of the power supply is limited.

Under-voltage Protection

Two under-voltage lockout comparators are incorporated, to guarantee that IC1 is fully functional before the output stage is enabled. Separate comparators with built-in hysteresis, monitor both the supply voltage at pin 7 and the reference voltage at pin 8.

If the supply voltage at pin 7 drops below 10 V (typical) e.g. due to a shorted secondary voltage or excessive load, the drive pulse at pin 6 is disabled and the controller will switch 'off'.

Over-voltage Protection

The over-voltage circuitry (ZD1, Q7, and Q8) is used to detect an over-voltage situation on the secondary side of the transformer.

If, after start-up, the voltage at the zenerdiode ZD1 will exceeds its zener voltage, the internal latch circuit is triggered (via pin 1), the output buffer is disabled, and the SMPS goes into over-voltage protection. Now a complete restart sequence is required.

Note: If the event of the over-voltage situation remains present, the SMPS will go in sequence of protection, start-up, protection and the cycle repeats. This effect is highly audible.

9.3.2 'EPM' Power Supply Module (3122 427 22930 or 22930)

Introduction

This supply is a Switching Mode Power Supply (SMPS), which uses the control IC TY720xx to produce pulses to drive the power 'switch' (MOSFET). The TY720xx (item 7101) is a high performance, current mode controller for DC-to-DC converter applications.

The operation frequency varies with the circuit load. When the output power demand decreases, the switching frequency raises, with a maximum frequency of 125 kHz (determined by C2107 at pin 5). At this point, the internal VCO takes over and starts to decrease the switching frequency.

This has some benefits compared to a 'fixed frequency' flyback converter. The efficiency is better, which results in a lower power consumption.

Note: See diagram in chapter 7.

Output Voltages

- +12V_stdby (present during standby).
- +5V_ stdby (present during standby).
- +5V_digital (will switch off via TS7221 during Standby).
- +5V_AV (will switch off via TS7221 during Standby).
- 3V3 (present during standby).
- -5V (will switch off during standby).

Operation

Mains Input Circuit

The bridge rectifier (D6112-D6115) rectifies the mains voltage, after which C2121 smoothens it. The DC voltage across this capacitor is the DC input voltage (approximately 300V), to pin 2 of transformer T5131 and IC7101.

The mains input also consists of a (differential mode) lightning protection R3120 and a (common mode) lightning protection 1121/1122 (spark gap).

Start-up Circuitry

The rectified voltage from the bridge rectifier is connected to pin 1 via R3116. This voltage will charge the V_{CC} capacitor (C2102). When this voltage, (at pin 13 of 7101), reaches the start-up threshold of min 15 V, the control circuit starts to operate.

After start-up, IC 7101 requires a sinking current, which the start-up circuitry cannot deliver. Therefor a take-over circuitry (a coupled winding of transformer L5131) is present. The voltage at this point will take over the supply voltage at pin 13 of the IC.

If the take-over circuit does not function, the IC will switch off again at the minimal operating voltage of +8 V. The whole operation cycle will repeat itself with audible hiccup sound if take-over is not present.

Secondary Voltage Sensing

The secondary voltage regulating circuit comprises of opto-coupler 7102 (which isolates the error signal from the control IC on the primary side), and a reference component 7201 (TL431).

The reference component has two functions:

- a very stable and accurate reference diode
- a high gain amplifier.

When the output voltage increases (due to a reduction in the load), the voltage across R3205+R3206 increases to above the internal reference voltage of 2.5 V. Item 7201 will conduct and the current through the opto-coupler will increase. This results in an increase of the voltage at pin 4 of 7101, which will reduce the on time of FET 7125. In the event of an output voltage decrease (due to an increase in the load), the control circuit will operate in the opposite way.

Primary Current Sensing

The current through FET 7125, will result in a voltage drop across R3126/27/28 (R_{SENSE}). This line goes to pin 11 of 7101, which is the current sense input. The higher the input voltage, the more the primary current is limited. In this way, the maximum output power of the power supply is limited.

Under-voltage Protection

If the supply voltage at pin 13 drops below 7.2 V (typical), e.g. due to a shorted secondary voltage or excessive load, the drive pulse at pin 6 is disabled and the controller will switch off.

Over-voltage Protection

An internal over-voltage protection circuitry continuously monitors the V_{CC} pin.

If, after start-up, this voltage exceeds 40 V, the internal latch circuit is triggered, the output buffer is disabled, and the SMPS goes into over-voltage protection. Now a complete restart sequence is required.

Note: If the event of the over-voltage situation remains present, the SMPS will go in sequence of protection, start-up, protection and the cycle repeats. This effect is highly audible.

9.4 Loader/Monoboard

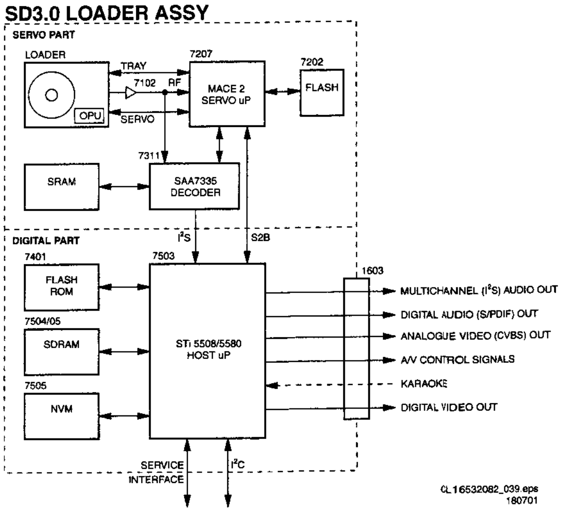

Figure 9-3

9.4.1 The Servo Part

The Optical Unit

The optical unit consists of two lasers, one for CD with a wavelength of 780 nm, and one for DVD with a wavelength of 650 nm. The TZA1033 (item 7102) controls the data from these lasers, and the supply to them.

The Signal Processor TZA1033

The TZA1033 (or DVDALAS2) is an analogue pre-processor and laser supply circuit. It contains data amplifiers and several options for radial tracking and focus control.

It is possible to optimise the dynamic range of this pre-amp/processor combination for the LF servo and RF data paths. The gain in both channels is separately programmable. This will guarantee an optimal playability for all kind of discs.

Also a dual laser supply is implemented, with fully automatic laser control including stabilisation and an ON/OFF switch, plus a separate supply pin for power efficiency.

The servo signals go to the MACE2 servo processor, while the HF output signal, goes to the SAA7335 decoder (item 7311).

The Decoder SAA7335

The SAA7335 (item 7311) is a high-end combined Compact Disc (CD) and Digital Versatile Disc (DVD) compatible decoding device. The device operates with an external 32 Kb SRAM for DVD error correction and de-interleaving operations.

This IC decodes EFM or EFM+HF signals directly from the laser pre-amplifier, including analogue front-end, PLL data recovery, demodulation and error correction.

The analogue front-end input converts the HF input to the digital domain via an 8-bit ADC, proceeded by an AGC circuit to obtain the optimum performance from the converter. An external resonator clocks this block. This subsystem recovers the data from the channel stream. It corrects asymmetry, performs noise filtering and equalisation and finally recovers the bit clock and data from the channel using a digital PLL.

The demodulator part detects the frame synchronisation signals and decodes the EFM (14 bit) and EFM+ (16 bit) data and sub-code words into 8 bit symbols. Via the serial output interface, the I^2S data (audio and video) go to the DVD decoder Sti5508.

The spindle-motor interface provides both motor control signals from the demodulator and, in addition, contains a tachometer loop that accepts tachometer pulses from the motor unit. They drive the motor IC (item 7304).
The SAA7335 has two independent microcontroller interfaces. The first is a serial I^2C-bus and the second is a standard 8-bit multiplexed parallel interface. Both of these interfaces provide access to a total of 32 8-bit registers for control and status.

The Servo Processor MACE2

The servo circuit in the MACE2 IC (item 7207), takes care of the servo controls. In a CD system, there are some 12 control loops active. About six of them are needed to adjust the servo error signals, that is once per disc rotation. It also adjusts offsets, signal amplitudes and loop gains (AGCs), to enlarge system robustness and to avoid expensive potentiometer adjustments in production.
The other six loops determine the laser spot position on the disc in the radial, axial (focus) and tangential directions.
It also has to take care that the spot accesses a required position as fast as possible. This access system consists of two parts, namely the actuator and the sled, which are (within a certain range) mechanically and electrically independent. So during an access, the servo has to control as well the actuator as the sled.
The analogue signals from the diode pre-processor are converted into a digital representation using A/D converters. For the communication between the host processor (Sti5508) and the servo processor the S2B bus is used, this supports full-duplex asynchronous communication.
Note: For an extensive description of the MACE2 IC, see Service Manual 3122 785 11010.

9.4.2 The Digital Part

The Host Processor Sti5508/Sti5580

The Sti5508/Sti5580 host processor is the successor of the Sti5505. It works on 2.5 V and 3.3 V. The Sti5580 is the high-end version with DTS and DVD-audio capability. It comprises the following functions:

- video decoder which supports MPEG1 and MPEG2
- audio decoder which supports AC-3, MPEG1, MPEG2, PCM, DTS, DVD-audio, 6-channel, virtual surround
- PAL/NTSC video encoder with simultaneously Y/C, CVBS and RGB/YUV outputs
- PAL to NTSC and NTSC to PAL conversion
- the video encoder supports Closed Captioning (CC) and MacroVision 7
- full screen On Screen Display (OSD) generator
- on-chip PLLs to generate all necessary clocks (as reference the 27 MHz video clock is used). This is only available from STi5508 cut 2.0 and above.

Input

Input data comes from the I^2S-bus. The front-end interface of this device, accepts DVD, CD and CD-DA information.

Signal Processing

For video, the input data stream is decoded to the appropriate MPEG, Sub Picture and OSD data streams, after which they are fed to the PAL/NTSC encoder. This cell will convert the digital MPEG/Sub Picture/OSD stream into a standard base band signal and into RGB components. It handles interlaced and non-interlaced data, can perform CC/TXT encoding and allows MacroVision copy protection.

For audio, the processing cell is a fully compatible Dolby AC-3, MPEG1, MPEG2, PCM, DTS and DVD-audio decoder, capable of decoding 5.1 and 2 channel streams.
Note: DTS and DVD-audio are only available with Sti5580.

Output

For video, six analogue output pins are available on which CVBS, S-VHS (Y/C) and RGB/YUV signals are present. They go directly to the A/V board.

For audio, the Sti5508 has 3 PCM digital outputs (for 6-channel analogue audio):

- PCM_OUT0: left + right (on pin 14 of connector 1603).
- PCM_OUT1: Centre and LFE (on pin 6 of connector 1604).
- PCM_OUT2: left and right surround (on pin 4 of connector 1604).

Sampling frequencies of 96 kHz, 48 kHz, 44.1 kHz and 32 kHz are supported, and a down sampling filter (96 kHz/48 kHz) is available.
The I^2S audio outputs of the Sti5508 go directly to the D/A converters (items 7500, 7502 and 7504) on the A/V board.

De-emphasis

In the 3rd generation player, the de-emphasis is done in the host processor (so not in the DACs on the A/V board). So there are no longer control lines foreseen to the A/V board. Therefore the 3rd generation mono board is not compatible with the first generation A/V board.

Memory

SDRAM

The size of the SDRAM is 2 times 16 Mb or 1 time 64 Mb (not simultaneously).
The SDRAM (items 7504 and 7505) has the following functions:

- it is used by the MPEG video decoder as a frame buffer
- it holds the software and the variables used by it.

Flash-ROM

A 2 Mb Flash-ROM (item 7401) holds the DVD firmware, and is controlled by pin 189 (FLASH_OEN) of the Sti5508/5580. It must be able to perform a download (by disk or DCU-link) in a Flash only system.

EEPROM

User settings, player settings and region code are stored in a 32 Kb I^2C EEPROM. For high-end applications a 64 Kb version is used, which is pin compatible.

9.5 Data Processing

9.5.1 Digital Theatre Sound (DTS) Board (If Present)

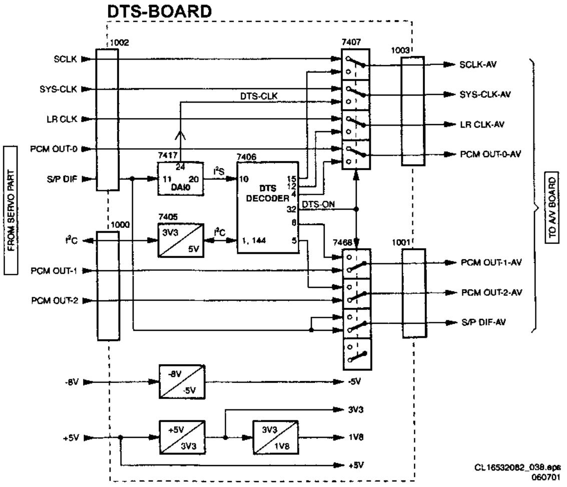

Figure 9-4

Some player models are DTS compatible. The DTS panel is then inserted between the Monoboard and the A/V board. You can split it up in three parts, which each are explained below.

Digital Video

The video data is not processed on this board, it goes directly to the A/V board.

Digital Audio Input Output (DAIO)

The AK4112A is a digital audio receiver (DIR) compatible with 96kHz, 24bits. It can automatically detect a Non-PCM bit stream. This IC decodes the SPDIF signal to an I^2S data stream. The output goes to the DTS decoder.

DTS Decoder

The DSP56366 (item 7406) is a Digital Signal Processor, used here as DTS decoder.
When the input data carries DTS information, the DTS_ON signal switches to high, and this will activate the two multiplex ICs 7407 and 7408. Now this data goes to the A/V board. In case it carries no DTS information, the PCM data from the Monoboard goes to the A/V board.
Output of the DTS decoder is an I^2S data stream, which is present at the Enhanced Serial Audio Interface (ESAI) pins.

9.5.2 Audio/Video (A/V) and SCART Board

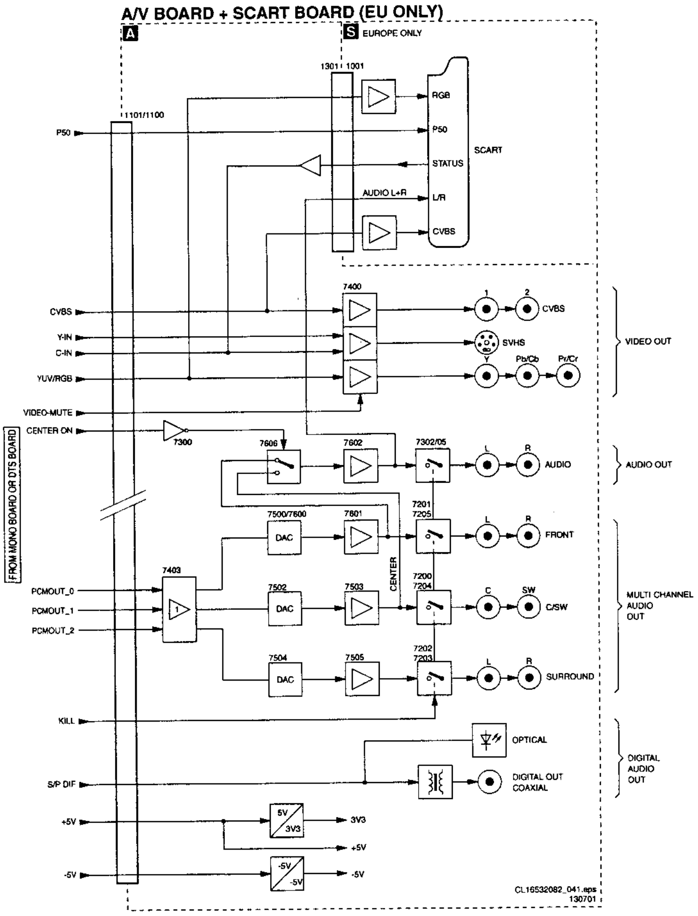
A/V BOARD + SCART BOARD (EU ONLY)
A
S EUROPE ONLY
1301
1001
1101/1100
P50
RGB
P50
STATUS
SCART
AUDIO L+R
L/R
CVBS
7400
CVBS
Y-IN
C-IN
YUV/RGB
1
2
CVBS
SVHS
Y
Pb/Cb
Pr/Cr
VIDEO OUT
VIDEO-MUTE
CENTER ON
FROM MONO BOARD OR DTS BOARD
7300
7606
7602
7302/05
L
R
AUDIO
AUDIO OUT
7500/7600
7601
7201
7205
DAC
FRONT
CENTER
7403
7502
7503
7200
7204
C
SW
C/SW
MULTI CHANNEL AUDIO OUT
PCMOUT_0
PCMOUT_1
PCMOUT_2
1
7504
7505
7202
7203
SURROUND
KILL
OPTICAL
DIGITAL AUDIO OUT
S/P DIF
DIGITAL OUT COAXIAL
+5V
5V
3V3
+5V
-5V
-5V
-5V
CL16532082_041.eps
130701

Figure 9-5

This board is the interface panel between the DVD-player and its peripherals.

Video

The analogue video signals from the Monoboard are fed to video buffer LA7109 (item 7400), and for Europe they also go to the SCART board (double SCART for DVD952). After amplification, they go directly to the VIDEO OUT cinch connectors.

Audio

The digital audio signals are fed to a buffer IC (7403, which is optional), followed by D/A converters.
The KILL signal, coming from the host processor Sti5508/Sti5580, mutes the audio outputs during STOP, NEXT and PREVIOUS commands.

9.5.3 Progressive Scan Board (If Present)

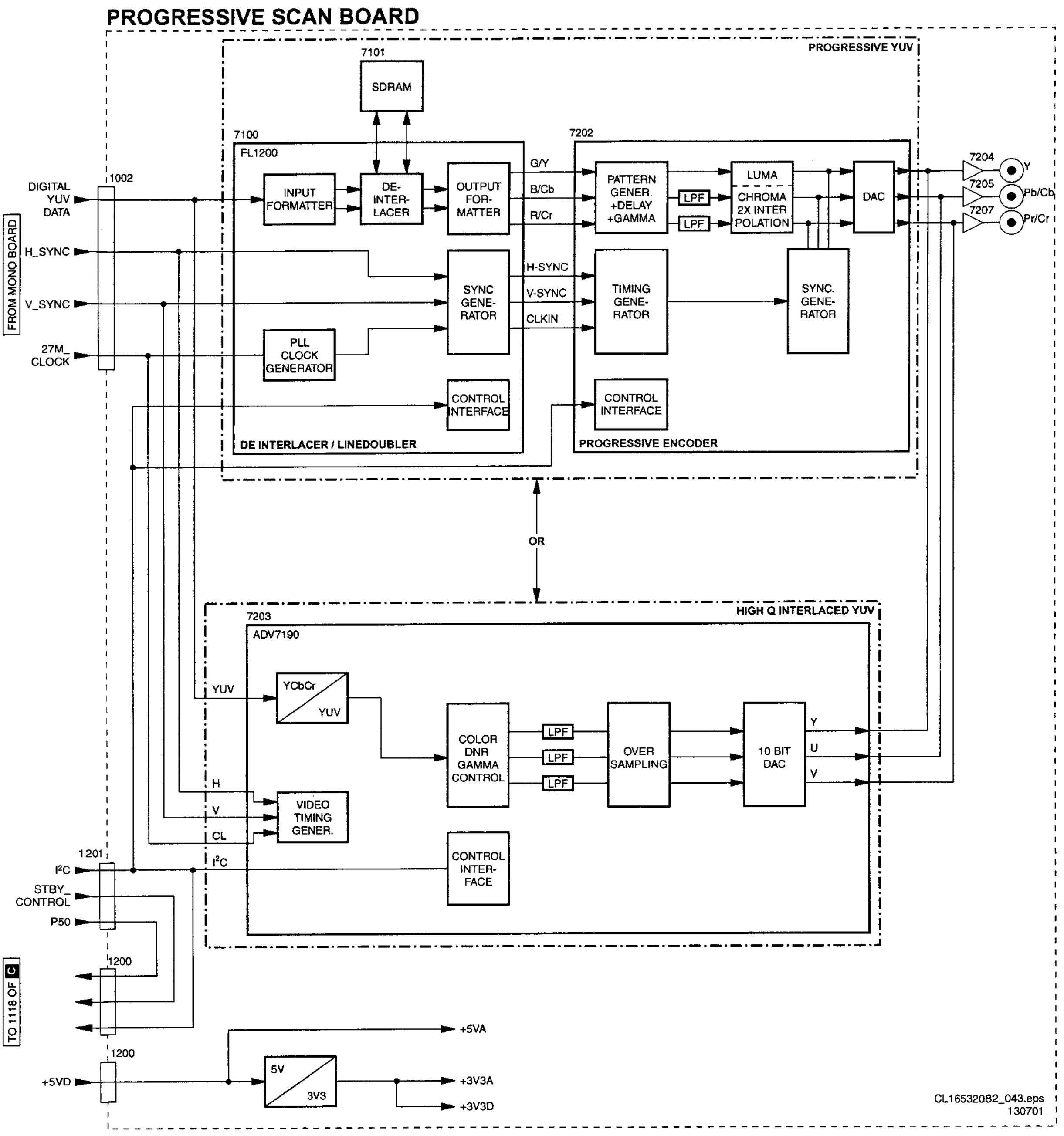
PROGRESSIVE SCAN BOARD
PROGRESSIVE YUV
7101
SDRAM
7100
FL1200
INPUT FORMATTER
DE-INTER-LACER
OUTPUT FOR-MATTER
SYNC GENE-RATOR
PLL CLOCK GENERATOR
CONTROL INTERFACE
DE INTERLACER / LINEDOUBLER
7202
G/Y
B/Cb
R/Cr
H-SYNC
V-SYNC
CLKIN
PATTERN GENER. +DELAY +GAMMA
LPF
LPF
LUMA
CHROMA 2X INTER POLATION
DAC
TIMING GENE-RATOR
SYNC. GENE-RATOR
CONTROL INTERFACE
PROGRESSIVE ENCODER
7204
7205
7207
Y
Pb/Cb
Pr/Cr
1002
DIGITAL YUV DATA
H_SYNC
V_SYNC
27M_ CLOCK
FROM MONO BOARD
OR
HIGH Q INTERLACED YUV
7203
ADV7190
YUV
YCbCr
YUV
COLOR DNR GAMMA CONTROL
LPF
LPF
LPF
OVER SAMPLING
10 BIT DAC
Y
U
V
H
V
CL
I²C
VIDEO TIMING GENER.
CONTROL INTER-FACE
1201
I²C
STBY_ CONTROL
P50
1200
TO 1118 OF C
+5VA
1200
+5VD
5V
3V3
+3V3A
+3V3D
CL16532082_043.eps
130701

Figure 9-6

Some higher specified models offer progressive scan outputs. The Progressive Scan board consists of two separate circuits (not used together):

- Progressive YUV (for non-Europe versions).
- High Quality Interlaced YUV (for Europe).

Progressive YUV
This creates a picture signal with double the scan lines of a conventional interlaced picture, to create a noticeably sharper and smoother image. It offers higher picture resolution and eliminates virtually all motion artefacts. Even on large screens, the progressive scan lines are barely noticeable and it reduces picture flickering significant.

High Quality Interlaced YUV
This is still a conventional interlaced video, except that an integrated Digital Video Encoder (ADV7190) processes it. This IC encodes the eight bits digital YUV from the Monoboard, to output components YUV with improved picture quality (reduce low amplitude and high frequency noise, SNR ratio).

Both have the Digital Crystal Clear feature, which allow you to fine-tune the following parameters:

- Gamma correction,
- Chroma and Luma delay.

9.6 Control and Display Panel

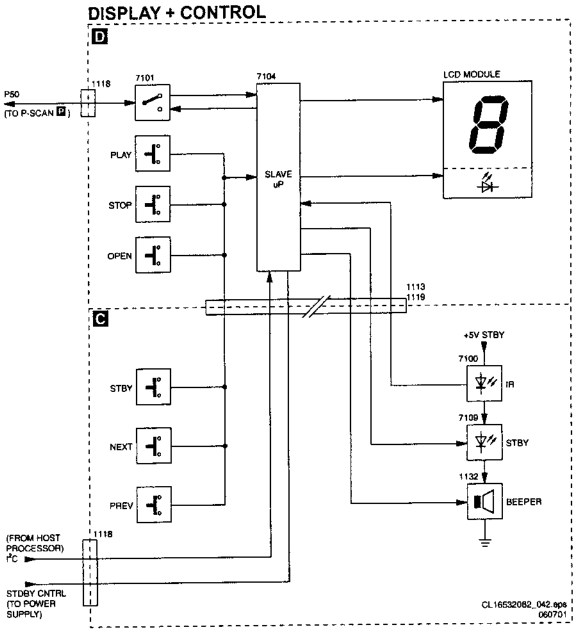

Figure 9-7

9.6.1 Control

Slave processor

The important component on this board is the (slave) microprocessor (item 7104). It works on an 8 MHz resonator (item 1110) and has a RESET circuit, which is triggered by the +5Vstby. After the RESET pulse, the STBY_CONTROL line will release the reset of the host microprocessor (on the Monoboard).
In addition, when going to Standby, the slave processor will reset the host processor. When the slave processor receives the correct IR (or key) code to leave the Standby mode, it resets the host processor.
Other slave processor functions are:

- generation of a scanning grid for the keys,
- generation of the display grid and segment scanning,
- generation of square signal to generate the filament voltage for FTD displays (when used),
- inputs for RC5/6 and P50 (P50 controller is build in).

Standby LED

Transistor 7109 drives the Standby LED. When the STB_LED signal from the slave processor is 'high', the LED is 'off'.

Key Matrix

When a key on the local keyboard is pressed, the signal at the scanning pins of the microprocessor goes from +5 V to 0 V.

Jog Shuttle(if present)

Some models (e.g. DVD952) are equipped with a jog-shuttle (via connector 1114). This jog shuttle functions just like a tact switch and is read via I/O port 4 of the slave processor.

IR Receiver

The IR controller in the slave processor handles both RC5 and RC6 signals. The logic is +5 V for 'high' and 0 V for 'low'.

P50 Interface

P50 (or Easylink) is a bi-directional serial interface for communication between video equipment. For European sets, this communication goes via pin 10 of the SCART connector, while for other regions (when present), this is a cinch connector. The slave processor controls the P50 bus.

9.6.2 Display

LCD Module (for Q-models)

The LCD module needs a supply voltage of +3 V, which is derived from the +5Vdigital signal via a 3 V zenerdiode (item 6101). The logic is +3.3 V for 'high' and 0 V for 'low'. All the logic and supply lines go via connector 1114.

The backlight LED for the LCD module needs a supply voltage of +3.5 V (via connector 1112). Transistor 7107 drives the LED, while resistors 3103 and 3105 are used as voltage dropping components.

FTD Display (for other models)

Some models (e.g. DVD952) have an FTD instead of an LCD. The slave processor has an internal square signal generator (42 kHz), to generate the AC filament voltage. TS7105 and 7106 amplify the square signal before it is applied to the display. The necessary power supply of -26 V is derived from the -40 V signal via voltage regulator 7112.

9.7 Abbreviation list

ADC	Analogue to Digital Converter
AM	Amplitude Modulation
AP	Asia Pacific
AV	External Audio Video
BE	Basic Engine
B/G	Monochrome TV system. Sound carrier distance is 5.5MHz
BC_AUX	Blue/Chroma input from AUX SCART
BC_TV	Blue/Chroma output to TV SCART
BTSC	Broadcast Television Standard Committee. Multiplex FM stereo sound system, originating from the USA and used e.g. in LATAM and AP-NTSC countries
ComPair	Computer aided rePair
CD-DA	CD Digital Audio
CS	Chip Select
CVBS	Composite Video Blanking and Synchronisation
DAC	Digital to Analogue Converter
DAIO	Digital Audio Input Output
D/K	Monochrome TV system. Sound carrier distance is 6.5MHz
DFU	Direction For Use: description for the end user
DNR	Dynamic Noise Reduction
DRAM	Dynamic RAM
DSP	Digital Signal Processing
DTS	Digital Theatre Sound
DVD	Digital Versatile Disc
EEPROM	Electrically Erasable and Programmable Read Only Memory
EFM	Eight to Fourteen bit Modulation
EU	Europe
EXT	External (source), entering the set via SCART or Cinch
FBIN_AUX	Fast blanking input from AUX SCART
FBOUT_TV	Fast blanking output to TV SCART
FLASH	Flash memory
FM	Frequency Modulation
GIN_AUX	Green input from AUX SCART
GOUT_TV	Green output to TV SCART
HP	Headphone
I	Monochrome TV system. Sound carrier distance is 6.0 MHz

I2C	Integrated IC bus
I2S	Integrated IC Sound bus
IF	Intermediate Frequency
Interlaced	Scan mode where two fields are used to form one frame. Each field contains half the number of the total amount of lines. The fields are written in “pairs”, causing line flicker.
IR	Infra Red
IRQ	Interrupt Request
LATAM	Latin America
LED	Light Emitting Diode
L/L’	Monochrome TV system. Sound carrier distance is 6.5 MHz. L’ is Band I, L is all bands except for Band I
LIN_AUX	Audio input (left) from AUX SCART
LIN_TV	Audio input (left) from TV SCART
LOUT_AUX	Audio output (left) to AUX SCART
LOUT_TV	Audio ouput (left) to TV SCART
LPCM	Linear PCM
LRCLK	Left/Right clock
LS	Loudspeaker
M/N	Monochrome TV system. Sound carrier distance is 4.5 MHz
MACE	Mini All Compact Disc Engine
MPEG	Motion Pictures Experts Group
NC	Not Connected
NICAM	Near Instantaneous Compounded Audio Multiplexing. This is a digital sound system, mainly used in Europe.
NTSC	National Television Standard Committee. Colour system mainly used in North America and Japan. Colour carrier NTSC M/N = 3.579545 MHz, NTSC 4.43 = 4.433619 MHz (this is a VCR norm, it is not transmitted off-air)
NVM	Non Volatile Memory: IC containing TV related data e.g. alignments
OC	Open Circuit
OPU	Optical Pick up Unit
OSD	On Screen Display
P50	Project 50 or Easy Link
PAL	Phase Alternating Line. Colour system mainly used in West Europe (colour carrier = 4.433619 MHz) and South America (colour carrier PAL M = 3.575612 MHz and PAL N = 3.582056 MHz)
PCB	Printed Circuit Board
PCM	Pulse Code Modulation
PCM_CLK	Audio system clock for DAC
PCM_OUTx	Audio serial output data
PIP	Picture In Picture
PLL	Phase Locked Loop. Used for e.g. FST tuning systems. The customer can give directly the desired frequency
Progressive Scan	Scan mode where all scan lines are displayed in one frame at the same time, creating a double vertical resolution.
RAM	Random Access Memory
RC	Remote Control handset
RC5	Remote Control system 5, signal from the remote control receiver
RGB	Red Green Blue
RIN_AUX	Red input from AUX SCART
ROUT_TV	Red output to TV SCART
ROM	Read Only Memory
S2B	Serial to Basic, communication bus between host- and servo processor
SAP	Second Audio Program
SCART	Syndicat des Constructeurs d’Appareils Radiorecepteurs et Televisieurs
SCL	Serial Clock I2C
SCLK	Audio serial bit clock
SDA	Serial Data I2C
SDRAM	Synchronous DRAM
SECAM	SEequence Couleur Avec Memoire. Colour system mainly used in France and East Europe. Colour carriers = 4.406250 MHz and 4.250000 MHz
SLB_AUX	Slow blanking control signal from AUX SCART
SLB_TV	Slow blanking control signal to TV SCART
S/PDIF	Sony Philips Digital InterFace
SRAM	Static RAM
STBY	Standby
SVHS	Super Video Home System
SW	Software
THD	Total Harmonic Distortion
TXT	Teletext
µP	Microprocessor
VCD	Video CD
VCR	Video Cassette Recorder
Y/C	Luminance (Y) and Chrominance (C) signal
YUV	Component video
0/6/12	SCART switch control signal on A/V board. 0 = loop through (AUX to TV), 6 = play 16:9 format, 12 = play 4:3 format

10. Spare Parts List

Q40 /0X1 Mech.

Various

0001	3139 247 54182	FRONT COMPLETE Q40 EUR
0002	3139 247 51831	BADGE PHILIPS ASSY SILVER
0005	3139 247 54001	FRONT PLA Q40 EUR PNT PRT
0020	3139 247 53761	WINDOW Q40 US PNT PRT
0030	3139 247 54021	BUTTON L Q40 EUR PNT PRT
0035	3139 247 54031	BUTTON R Q40 EUR PNT PRT
0055	3139 247 54291	ASSY TRAY COVER DVD Q40
0250	3139 247 54041	PLATE BACK Q40 EUR PNT PRT
0300	3139 247 54081	COVER TOP Q40 EUR PNT PRT
0350	3139 228 87712	PROD.ASSY RC19237002/01 PACKED
0360▲	2422 070 98133	MAINSCORD EUR 1M5 BK B
0360▲	4822 321 10713	MAINSCORD 300V EUR 1M5 BK B (FOR /051 ONLY)
0365	3103 308 92610	CABLE AUDIO 2X2RCA MALE 1.5MTR
0366	4822 321 61579	VIDEO-CABLE
0372	3111 170 21992	SCART CABLE (L=1.10M) BMS
0375	3139 246 11251	IFU DVD Q40/05X
0375	3139 246 11221	IFU DVD Q40/001 /021
1101	3104 157 11200	CWAS FLEX DVD 16 130 32S
1102	3104 157 11190	CWAS FLEX DVD 22 130 32S
1108	3139 110 35821	FFC 08P/209/08P BD 1MMP FOLDED
1111	3104 157 11200	CWAS FLEX DVD 16 130 32S
1112	3104 157 11190	CWAS FLEX DVD 22 130 32S
1113	3104 157 11190	CWAS FLEX DVD 22 130 32S
1117	3139 110 35831	FFC 08P/241/08P BD 1MMP FOLDED

AV PWB DVDQ40 /0X1

Various

1100	2422 025 16525	CON BM V 16P F 1.00 FFC 0.3 R
1101	4822 265 11154	52030-2210 (22P)
1301	4822 265 11154	52030-2210 (22P)
1400	2422 026 05088	CON BM CINCH H 6P F B
1401	2422 026 05189	CON BM CINCH H 4P F YEWHRD B
1402	2422 026 05188	CON BM MDIN H 3P F TCS7927 B
1403	2422 026 05191	CON BM CINCH H 3P F RDBUGN B
1404	4822 267 31626	

⊣⊢

2100	4822 126 14305	100nF 10% 16V 0603
2101	4822 124 40184	1000µF 20% 10V
2102	4822 126 14305	100nF 10% 16V 0603
2103	4822 124 40184	1000µF 20% 10V
2104	4822 124 40207	100µF 20% 25V
2105	4822 126 14305	100nF 10% 16V 0603
2106	4822 124 40207	100µF 20% 25V
2107	3198 017 44740	0603 10V 470nF COL
2109	4822 124 40207	100µF 20% 25V
2110	4822 126 14305	100nF 10% 16V 0603
2111	4822 124 23052	100µF 20% 16V
2113	4822 126 13883	220pF 5% 50V
2114	4822 126 13883	220pF 5% 50V
2115	4822 126 13883	220pF 5% 50V
2116	4822 126 13883	220pF 5% 50V
2117	4822 124 23052	100µF 20% 16V
2118	4822 124 21732	10µF 20% 25V
2119	3198 017 44740	0603 10V 470nF COL
2120	4822 126 14305	100nF 10% 16V 0603
2121	4822 124 11947	10µF 20% 16V
2122	4822 122 33777	47pF 5% 63V
2123	4822 126 14305	100nF 10% 16V 0603
2124	4822 122 33777	47pF 5% 63V
2125	4822 126 13883	220pF 5% 50V
2126	4822 126 13883	220pF 5% 50V
2127	4822 126 13883	220pF 5% 50V
2130	4822 124 41584	100µF 20% 10V
2202	4822 124 80231	47µF 20% 16V
2203	4822 124 80231	47µF 20% 16V
2204	4822 124 80231	47µF 20% 16V
2209	4822 124 11947	10µF 20% 16V
2210	4822 124 11947	10µF 20% 16V
2211	4822 124 11947	10µF 20% 16V
2212	4822 124 11947	10µF 20% 16V
2213	4822 124 11947	10µF 20% 16V
2214	4822 124 11947	10µF 20% 16V
2215	4822 126 14305	100nF 10% 16V 0603
2216	4822 126 14305	100nF 10% 16V 0603
2217	4822 126 14305	100nF 10% 16V 0603
2218	4822 126 14305	100nF 10% 16V 0603
2219	4822 126 14305	100nF 10% 16V 0603
2220	4822 126 14305	100nF 10% 16V 0603
2221	4822 126 14305	100nF 10% 16V 0603
2222	4822 126 14305	100nF 10% 16V 0603
2223	4822 126 14305	100nF 10% 16V 0603
2224	4822 122 31765	100pF 2% 63V
2225	4822 122 31765	100pF 2% 63V
2227	4822 122 31765	100pF 2% 63V
2228	4822 122 31765	100pF 2% 63V
2230	4822 126 14305	100nF 10% 16V 0603
2231	4822 126 14305	100nF 10% 16V 0603
2234	4822 126 14305	100nF 10% 16V 0603
2235	4822 126 14305	100nF 10% 16V 0603
2238	4822 124 40207	100µF 20% 25V
2239	4822 124 40207	100µF 20% 25V
2240	4822 124 40207	100µF 20% 25V
2242	4822 124 40207	100µF 20% 25V
2243	3198 016 31020	0603 25V 1nF
2245	3198 016 31020	0603 25V 1nF
2246	3198 016 31020	0603 25V 1nF
2247	3198 016 31020	0603 25V 1nF
2248	3198 016 31020	0603 25V 1nF
2249	3198 016 31020	0603 25V 1nF
2251	4822 122 33761	22pF 5% 50V
2308	4822 126 14305	100nF 10% 16V 0603
2311	4822 124 22339	100UE 16V
2312	4822 126 14305	100nF 10% 16V 0603
2314	4822 122 31765	100pF 2% 63V
2316	3198 016 31020	0603 25V 1nF
2321	4822 124 22339	100UE 16V
2324	4822 122 31765	100pF 2% 63V
2327	3198 016 31020	0603 25V 1nF
2328	4822 126 14305	100nF 10% 16V 0603
2329	4822 126 14305	100nF 10% 16V 0603
2330	4822 124 41584	100µF 20% 10V
2331	4822 124 41584	100µF 20% 10V
2335	4822 126 14305	100nF 10% 16V 0603
2336	4822 126 14305	100nF 10% 16V 0603
2337	4822 126 14305	100nF 10% 16V 0603
2338	4822 126 14305	100nF 10% 16V 0603

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3100	4822 117 11152	4Ω7 5%
3101	4822 117 11152	4Ω7 5%
3102	4822 051 30759	75Ω 5% 0.062W
3103	4822 051 30759	75Ω 5% 0.062W
3104	4822 051 30759	75Ω 5% 0.062W
3105	4822 117 11152	4Ω7 5%
3106	4822 051 30759	75Ω 5% 0.062W
3108	4822 051 30759	75Ω 5% 0.062W
3109	4822 051 30223	22k 5% 0.062W
3110	4822 051 30222	2k2 5% 0.062W
3111	4822 117 12902	8k2 1% 0.063W 0603
3112	4822 051 30759	75Ω 5% 0.062W
3113	4822 051 30223	22k 5% 0.062W
3114	4822 051 30759	75Ω 5% 0.062W
3115	4822 051 30153	15k 5% 0.062W
3116	4822 051 30103	10k 5% 0.062W
3118	4822 117 11152	4Ω7 5%
3120	4822 051 30101	100Ω 5% 0.062W
3121	4822 051 30101	100Ω 5% 0.062W
3122	4822 051 30689	68Ω 5% 0.063W 0603 RC21 RST SM
3200	4822 051 30479	47Ω 5% 0.062W
3201	4822 051 30479	47Ω 5% 0.062W
3202	4822 051 30479	47Ω 5% 0.062W
3204	4822 117 12902	8k2 1% 0.063W 0603
3205	4822 117 12902	8k2 1% 0.063W 0603
3206	4822 051 30103	10k 5% 0.062W
3208	4822 051 30103	10k 5% 0.062W
3209	4822 051 30472	4k7 5% 0.062W
3210	4822 051 30472	4k7 5% 0.062W
3212	4822 051 30472	4k7 5% 0.062W
3213	4822 051 30472	4k7 5% 0.062W
3216	4822 051 30103	10k 5% 0.062W
3217	4822 117 12902	8k2 1% 0.063W 0603
3219	4822 051 30103	10k 5% 0.062W
3220	4822 051 30272	2k7 5% 0.062W
3221	4822 051 30272	2k7 5% 0.062W
3222	4822 051 30272	2k7 5% 0.062W
3223	4822 051 30471	470Ω 5% 0.062W
3224	4822 051 30471	470Ω 5% 0.062W
3225	4822 051 30471	470Ω 5% 0.062W
3226	4822 117 12902	8k2 1% 0.063W 0603
3227	4822 051 30471	470Ω 5% 0.062W
3228	4822 051 30471	470Ω 5% 0.062W
3229	4822 051 30471	470Ω 5% 0.062W
3230	4822 051 30272	2k7 5% 0.062W
3231	4822 051 30272	2k7 5% 0.062W
3232	4822 051 30272	2k7 5% 0.062W
3233	4822 051 30103	10k 5% 0.062W
3234	4822 051 30103	10k 5% 0.062W
3235	4822 051 30103	10k 5% 0.062W
3236	4822 051 30103	10k 5% 0.062W
3237	4822 051 30103	10k 5% 0.062W
3238	4822 051 30103	10k 5% 0.062W
3301	4822 051 30008	0Ω jumper
3302	4822 051 30471	470Ω 5% 0.062W
3303	4822 117 13632	100k 1% 0603 0.62W
3304	4822 051 30272	2k7 5% 0.062W
3309	4822 051 30008	0Ω jumper
3311	4822 117 12902	8k2 1% 0.063W 0603
3314	4822 051 30103	10k 5% 0.062W
3319	4822 051 30008	0Ω jumper
3321	4822 051 30471	470Ω 5% 0.062W
3322	4822 117 13632	100k 1% 0603 0.62W
3323	4822 051 30272	2k7 5% 0.062W
3325	4822 051 30008	0Ω jumper
3328	4822 117 12902	8k2 1% 0.063W 0603
3331	4822 051 30103	10k 5% 0.062W
3334	4822 051 30472	4k7 5% 0.062W
3335	4822 051 30272	2k7 5% 0.062W
3336	4822 051 30472	4k7 5% 0.062W
3337	4822 051 30472	4k7 5% 0.062W

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5103	4822 157 70601	100µH (920927085A)

7101	4822 130 60511	BC847B
7102	4822 130 60511	BC847B
7103	4822 130 60511	BC847B
7200	4822 130 42804	BC817-25
7201	4822 130 42804	BC817-25
7202	4822 130 42804	BC817-25
7203	4822 130 42804	BC817-25
7204	4822 130 42804	BC817-25
7205	4822 130 42804	BC817-25
7300	4822 130 60511	BC847B
7302	4822 130 42804	BC817-25
7305	4822 130 42804	BC817-25
7400	9322 165 60668	IC SM LA7109 (TSAJ) R
7401	4822 209 16978	LF33CV
7402	4822 130 10845	GP1F32T
7500	9352 640 74118	IC SM UDA1334TS/NI (PHSE) R
7502	9352 640 74118	IC SM UDA1334TS/NI (PHSE) R
7503	4822 209 30095	LM833D
7504	9352 640 74118	IC SM UDA1334TS/NI (PHSE) R
7505	4822 209 30095	LM833D
7601	4822 209 30095	LM833D
7602	4822 209 30095	LM833D
7605	4822 209 30095	LM833D
7606	5322 209 14481	HEF4053BT

Front PWB DVDQ40-50 /0X1

Various

1100	4822 276 13775	SWITCH
1101	4822 276 13775	SWITCH
1102	4822 276 13775	SWITCH
1103	4822 276 13775	SWITCH
1104	4822 276 13775	SWITCH
1105	3139 248 70791	LCD MODULE WD-G0504V-7WLWA WTK
1110	2422 540 98518	RES CER 8MHz CSTS*MHz 03 A
1111	4822 276 13775	SWITCH
1113	2422 025 16393	CON BM V 8P F 1.00 FFC 0.3 B
1114	2422 025 16393	CON BM V 8P F 1.00 FFC 0.3 B
1115	4822 267 10565	4P
1116	2422 025 16393	CON BM V 8P F 1.00 FFC 0.3 B
1117	2422 025 16393	CON BM V 8P F 1.00 FFC 0.3 B
1118	2422 025 08149	CON BM V 6P M 2.00 PH B (FOR DVDQ50 ONLY)
1118	4822 267 10637	B5B-PH-K (5P)
1119	2422 025 16393	CON BM V 8P F 1.00 FFC 0.3 B
1132	2422 527 01005	BUZZER PIEZO PKM13EPY-4002 Y

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2100	4822 126 13883	220pF 5% 50V
2101	4822 126 13883	220pF 5% 50V
2102	4822 124 40769	4.7µF 20% 100V
2104	4822 124 23052	100µF 20% 16V
2105	4822 126 14549	33nF 16V 0603
2106	4822 124 23052	100µF 20% 16V
2114	4822 122 33761	22pF 5% 50V
2115	4822 122 33761	22pF 5% 50V
2128	5322 126 11578	1nF 10% 50V 0603
2129	4822 124 11947	10µF 20% 16V
2201	4822 126 14549	33nF 16V 0603
2202	4822 126 14549	33nF 16V 0603
2203	5322 126 11578	1nF 10% 50V 0603

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3100	4822 051 30223	22k 5% 0.062W
3101	4822 051 30273	27k 5% 0.062W
3102	4822 117 12925	47k 1% 0.063W 0603
3103	4822 051 30109	10Ω 5% 0.062W
3104	4822 117 13632	100k 1% 0603 0.62W
3105	4822 051 30109	10Ω 5% 0.062W
3106	4822 051 30221	220Ω 5% 0.062W
3109	4822 051 30472	4k7 5% 0.062W
3110	4822 051 30472	4k7 5% 0.062W
3112	4822 051 30472	4k7 5% 0.062W
3113	4822 051 30472	4k7 5% 0.062W
3114	4822 051 30472	4k7 5% 0.062W
3115	4822 051 30472	4k7 5% 0.062W
3116	4822 051 30472	4k7 5% 0.062W
3121	4822 051 30472	4k7 5% 0.062W
3122	4822 051 30109	10Ω 5% 0.062W
3125	4822 051 30109	10Ω 5% 0.062W
3130	4822 051 30109	10Ω 5% 0.062W
3133	4822 051 30109	10Ω 5% 0.062W
3135	4822 051 30331	330Ω 5% 0.062W
3136	4822 051 30102	1k 5% 0.062W
3137	4822 051 30103	10k 5% 0.062W
3140	4822 051 30103	10k 5% 0.062W
3141	4822 051 30103	10k 5% 0.062W
3142	4822 051 30331	330Ω 5% 0.062W
3144	4822 117 13632	100k 1% 0603 0.62W
3150	4822 051 30472	4k7 5% 0.062W
3151	4822 051 30472	4k7 5% 0.062W
3152	4822 051 30472	4k7 5% 0.062W
3160	4822 051 30332	3k3 5% 0.062W
3161	4822 051 30332	3k3 5% 0.062W
3162	4822 051 30332	3k3 5% 0.062W
3163	4822 051 30332	3k3 5% 0.062W
3164	4822 051 30332	3k3 5% 0.062W
3170	4822 051 30103	10k 5% 0.062W
3171	4822 051 30103	10k 5% 0.062W
3174	4822 051 30472	4k7 5% 0.062W
3175	4822 051 30181	180Ω 5% 0.062W
3177	4822 051 30472	4k7 5% 0.062W

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6100	4822 130 11397	BAS316
6101	9340 385 50115	DIO REG SM BZX284-C3V0 (PHSE)R
6104	4822 130 11397	BAS316
6200	9322 171 67682	LED VS LTL-2R7TWK (LITO) B

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7100	9322 155 22667	
7101	4822 130 60511	BC847B
7102	4822 130 60511	BC847B
7104	3139 240 50161	IC SM TMP87CM48DF 3ER6
7107	5322 130 60845	BC807-25
7108	4822 130 60511	BC847B
7109	4822 130 60373	BC856B
7110	4822 130 42804	BC817-25

DTS PWB DVDQ40-50 /0X1

Various

1000	2422 025 16525	CON BM V 16P F 1.00 FFC 0.3 R
1001	2422 025 16525	CON BM V 16P F 1.00 FFC 0.3 R
1002	4822 265 11154	52030-2210 (22P)
1003	4822 265 11154	52030-2210 (22P)
1012	2422 543 01207	12MHz 2880 20P AT-49 A

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2003	4822 124 40207	100µF 20% 25V
2030	4822 126 14549	33nF 16V 0603
2031	3198 017 34730	0603 16V 47nF COL
2032	4822 124 40207	100µF 20% 25V
2033	4822 124 40207	100µF 20% 25V
2034	4822 126 14305	100nF 10% 16V 0603
2035	3198 016 31020	0603 25V 1nF
2036	4822 124 81286	47µF 20% 16V
2037	4822 126 14305	100nF 10% 16V 0603
2038	4822 126 14305	100nF 10% 16V 0603
2039	4822 126 14305	100nF 10% 16V 0603
2040	4822 126 14305	100nF 10% 16V 0603
2042	4822 124 40433	47µF 20% 25V
2043	4822 126 14305	100nF 10% 16V 0603
2044	4822 126 14305	100nF 10% 16V 0603
2045	4822 126 14305	100nF 10% 16V 0603
2046	4822 126 14305	100nF 10% 16V 0603
2047	4822 126 14305	100nF 10% 16V 0603
2048	4822 126 14305	100nF 10% 16V 0603
2049	4822 126 14305	100nF 10% 16V 0603
2050	4822 126 14305	100nF 10% 16V 0603
2051	4822 126 14305	100nF 10% 16V 0603
2052	4822 126 14305	100nF 10% 16V 0603
2053	4822 126 14305	100nF 10% 16V 0603
2054	4822 126 14305	100nF 10% 16V 0603
2055	4822 126 14305	100nF 10% 16V 0603
2056	4822 126 14305	100nF 10% 16V 0603
2057	4822 126 14305	100nF 10% 16V 0603
2058	4822 126 14305	100nF 10% 16V 0603
2059	4822 124 11947	10µF 20% 16V
2060	4822 124 40433	47µF 20% 25V
2062	4822 126 14494	22nF 10% 25V 0603
2063	4822 126 14494	22nF 10% 25V 0603
2064	4822 122 33777	47pF 5% 63V
2065	4822 122 33777	47pF 5% 63V
2066	4822 122 33777	47pF 5% 63V
2067	4822 122 33777	47pF 5% 63V
2068	4822 122 33777	47pF 5% 63V
2069	4822 122 33777	47pF 5% 63V
2071	4822 122 33741	10pF 10% 50V
2072	4822 122 33741	10pF 10% 50V
2115	4822 126 14305	100nF 10% 16V 0603
2116	4822 124 11947	10µF 20% 16V
2118	4822 124 11947	10µF 20% 16V
2119	4822 126 14305	100nF 10% 16V 0603
2120	4822 126 14305	100nF 10% 16V 0603
2121	4822 124 11947	10µF 20% 16V
2122	4822 126 14507	18pF 5% 50V 0603
2124	5322 126 11583	10nF 10% 50V 0603

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3072	4822 051 30103	10k 5% 0.062W
3073	4822 051 30103	10k 5% 0.062W
3074	4822 051 30103	10k 5% 0.062W
3075	4822 051 30103	10k 5% 0.062W
3076	4822 051 30103	10k 5% 0.062W
3077	4822 051 30103	10k 5% 0.062W
3078	4822 051 30103	10k 5% 0.062W
3079	4822 051 30103	10k 5% 0.062W
3080	4822 051 30103	10k 5% 0.062W
3081	4822 117 12925	47k 1% 0.063W 0603
3086	4822 051 30102	1k 5% 0.062W
3092	4822 051 30101	100Ω 5% 0.062W
3096	4822 051 30103	10k 5% 0.062W
3098	4822 051 30103	10k 5% 0.062W
3100	4822 117 12139	22Ω 5% 0.062W
3104	4822 051 30101	100Ω 5% 0.062W
3105	4822 051 30101	100Ω 5% 0.062W
3108	4822 051 30101	100Ω 5% 0.062W
3109	4822 051 30101	100Ω 5% 0.062W
3110	4822 051 30101	100Ω 5% 0.062W
3112	4822 051 30103	10k 5% 0.062W
3113	4822 051 30101	100Ω 5% 0.062W
3114	4822 051 30101	100Ω 5% 0.062W
3115	4822 051 30103	10k 5% 0.062W
3116	4822 051 30101	100Ω 5% 0.062W
3117	4822 051 30103	10k 5% 0.062W
3118	4822 051 30101	100Ω 5% 0.062W
3119	4822 051 30101	100Ω 5% 0.062W
3120	4822 117 12925	47k 1% 0.063W 0603
3145	4822 051 30101	100Ω 5% 0.062W
3146	4822 051 30101	100Ω 5% 0.062W
3147	4822 051 30101	100Ω 5% 0.062W
3150	4822 051 30101	100Ω 5% 0.062W
3151	4822 051 30101	100Ω 5% 0.062W
3152	4822 051 30101	100Ω 5% 0.062W
3154	4822 051 30101	100Ω 5% 0.062W
3155	4822 051 30101	100Ω 5% 0.062W
3156	4822 051 30101	100Ω 5% 0.062W
3157	4822 051 30101	100Ω 5% 0.062W
3174	4822 051 30102	1k 5% 0.062W
3176	4822 051 30102	1k 5% 0.062W
3177	4822 051 30101	100Ω 5% 0.062W
3178	4822 051 30183	18k 5% 0.062W
3179	4822 051 30101	100Ω 5% 0.062W
3180	4822 051 30101	100Ω 5% 0.062W
3182	4822 051 30102	1k 5% 0.062W
3183	4822 051 30101	100Ω 5% 0.062W
3187	4822 051 30105	1M 5% 0.062W
3188	4822 051 30103	10k 5% 0.062W
3189	4822 051 30101	100Ω 5% 0.062W
4xxx	4822 051 10008	0Ω 5% 0.25W (1206)
4xxx	4822 051 20008	0Ω 5% 0.25W (0805)

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5003	4822 157 71304	1µH

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7406	9322 159 99671	XCD56366PV120
7407	9322 077 40668	MC74F157AD
7408	9322 077 40668	MC74F157AD
7409	4822 209 17398	LD1117DT33
7417	9322 159 98668	AK4112AVF
7418	9352 611 78118	74HC1GU04GW

Single SCART DVDQ40-50 /0X1

Various

1001	4822 265 11154	52030-2210 (22P)
1002	2422 025 12352	CON BM EURO H 21P F BK GRND-L

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2100	4822 124 40207	100µF 20% 25V
2101	4822 126 14305	100nF 10% 16V 0603
2102	4822 126 13883	220pF 5% 50V
2103	4822 126 13883	220pF 5% 50V
2104	4822 126 13883	220pF 5% 50V
2105	4822 122 31765	100pF 2% 63V
2106	4822 126 14305	100nF 10% 16V 0603
2107	4822 124 40207	100µF 20% 25V
2108	4822 126 14305	100nF 10% 16V 0603
2109	4822 124 40207	100µF 20% 25V
2110	4822 124 40207	100µF 20% 25V
2111	4822 126 14305	100nF 10% 16V 0603
2112	4822 126 13883	220pF 5% 50V
2113	4822 126 13883	220pF 5% 50V
2114	4822 126 13883	220pF 5% 50V
2115	4822 126 13883	220pF 5% 50V

2116	4822 126 13883	220pF 5% 50V
2117	4822 126 14305	100nF 10% 16V 0603

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3100	4822 051 30272	2k7 5% 0.062W
3101	4822 051 30221	220Ω 5% 0.062W
3102	4822 116 83872	220Ω 5% 0.5W
3103	4822 051 30272	2k7 5% 0.062W
3104	4822 051 30759	75Ω 5% 0.062W
3105	4822 051 30759	75Ω 5% 0.062W
3106	4822 051 30759	75Ω 5% 0.062W
3107	4822 051 30759	75Ω 5% 0.062W
3108	4822 051 30759	75Ω 5% 0.062W
3109	4822 051 30223	22k 5% 0.062W
3110	4822 051 30221	220Ω 5% 0.062W
3111	4822 051 30102	1k 5% 0.062W
3112	4822 117 12925	47k 1% 0.063W 0603
3113	4822 117 12925	47k 1% 0.063W 0603
3114	4822 117 12925	47k 1% 0.063W 0603
3115	4822 051 30472	4k7 5% 0.062W

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6100	9340 548 63115	DIO REG SM PDZ15B (PHSE) R
6101	9340 548 63115	DIO REG SM PDZ15B (PHSE) R
6102	9340 548 63115	DIO REG SM PDZ15B (PHSE) R
6103	9340 548 63115	DIO REG SM PDZ15B (PHSE) R
6104	9340 548 63115	DIO REG SM PDZ15B (PHSE) R
6105	9340 548 63115	DIO REG SM PDZ15B (PHSE) R
6106	9340 548 63115	DIO REG SM PDZ15B (PHSE) R

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7100	9322 165 60668	IC SM LA7109 (TSAJ) R
7401	4822 130 60511	BC847B
7402	4822 130 60511	BC847B
7403	4822 130 60373	BC856B
7404	4822 130 60511	BC847B
7405	4822 130 60373	BC856B
7406	4822 130 60511	BC847B

PSU PWB DVDQ40-50 /0X1

Various

0102▲	2422 030 00304	SOC SUPP AC HOR MALE 9452 B
0120▲	4822 265 11253	FUSE HOLDER 2P
0205	2422 025 08333	CON BM V 12P M 2.50 EH B
0206	2422 025 11244	CON BM V 07P M 2.50 EH B
0208	4822 267 10565	4P
1120▲	4822 253 30383	19181 (2,5A)

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2102	4822 124 81151	22µF 50V
2106▲	4822 121 10711	100nF 20% 275V
2107	5322 126 10511	1nF 5% 50V
2108	4822 126 13694	68pF 1% 63V
2113	5322 122 32654	63V 22nF PM10 R
2121	2222 151 90054	EL 151 400V S 100µF
2122	4822 121 70141	33nF 5% 400V
2127	4822 126 12263	220pF 10%) 1KV
2130▲	4822 126 13841	1nF 20% 250V
2131▲	4822 126 13841	1nF 20% 250V
2201	4822 126 14585	100nF 10% 50V
2211	4822 124 41545	220µF 20% 16V
2212	4822 126 14585	100nF 10% 50V
2219	2020 021 91493	470µF 20% 25V
2220	2020 021 91636	EL YXF 35V S 1000F PM20 B (FOR DVDQ50 ONLY)
2221	4822 124 41545	220µF 20% 16V
2223	4822 126 14585	100nF 10% 50V
2225	4822 124 81021	100µF 20% 16V
2230	2020 012 93728	EL YK 10V S 2200µF PM20 B
2231	4822 124 81021	100µF 20% 16V
2240	4822 124 41545	220µF 20% 16V
2241	4822 124 81021	100µF 20% 16V
2242	4822 126 14585	100nF 10% 50V
2250	4822 124 81151	22µF 50V
2260	4822 124 81147	470µF 20% YK 25V
2261	4822 126 14585	100nF 10% 50V
2263	4822 124 40207	100µF 20% 25V
2264	4822 126 14585	100nF 10% 50V
2299	5322 122 32654	63V 22nF PM10 R

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3102	4822 116 52182	15Ω 5% 0.5W
3103	4822 117 11449	2k2 5% 0.1W 0805
3104	4822 051 20339	33Ω 5% 0.1W
3105	4822 116 52219	330Ω 5% 0.5W
3108	4822 051 20223	22k 5% 0.1W
3110	4822 051 20472	4k7 5% 0.1W
3112	4822 051 20223	22k 5% 0.1W
3113	4822 051 20332	3k3 5% 0.1W
3116▲	4822 052 10102	1k 5% 0.33W
3120▲	2122 550 00147	VDR DC 1M A/423V S MAX 775V B
3121	4822 117 12181	470Ω 20% 0.5W
3122	4822 117 13515	2Ω7 3W AC03 WW
3125	4822 051 20472	4k7 5% 0.1W
3126	4822 116 80676	1Ω5 5% 0.5W
3127	4822 116 80676	1Ω5 5% 0.5W
3128	4822 116 80176	1Ω 5% 0.5W
3130▲	4822 053 21106	10M 5% 0.5W
3201	4822 116 52226	560Ω 5% 0.5W
3202	4822 117 11142	2k4 1% 0.1W
3203	4822 051 20479	47Ω 5% 0.1W
3204	4822 117 11504	270Ω 1% 0.1W
3205	4822 117 11144	3k9 1% 0.1W
3206	5322 117 12487	1k RC12G 1% 0.125W
3207	4822 051 20391	390Ω 5% 0.1W
3208	4822 117 11503	220Ω 1% 0.1W
3209	4822 117 12955	2k7 1% 0.1W 0805
3220	4822 051 20102	1k 5% 0.1W
3231	4822 051 20102	1k 5% 0.1W
3242	4822 051 20472	4k7 5% 0.1W
3243	4822 117 10837	100k 1% 0.1W
3260	4822 051 20102	1k 5% 0.1W
3262	4822 117 10833	10k 1% 0.1W
3263	4822 117 11148	56k 1% 0.1W
3276	4822 117 10834	47k 1% 0.1W

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5121▲	4822 157 53348	TER CHOKE ASSY CU15D3
5131▲	4822 146 10402	TRAFO CT395FANF/PVF
5210	2422 535 94638	IND FXD LHL08 S 6U8 PM20 A
5220	2422 535 94638	IND FXD LHL08 S 6U8 PM20 A
5230	2422 535 94638	IND FXD LHL08 S 6U8 PM20 A
5250	4822 157 11517	10µH 5% 2.3X3.4
5260	2422 535 94638	IND FXD LHL08 S 6U8 PM20 A

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6102	4822 130 42488	BYD33D
6103	4822 130 30621	1N4148
6106	4822 130 83757	BAS216
6112	4822 130 31603	1N4006
6113	4822 130 31603	1N4006
6114	4822 130 31603	1N4006
6115	4822 130 31603	1N4006
6122	4822 130 34281	BZX79-B15
6123	4822 130 34281	BZX79-B15
6127	5322 130 34574	1N4004G
6128	5322 130 34574	1N4004G
6201	4822 130 10794	BZX284-C10
6202	4822 130 83757	BAS216
6221	4822 130 11596	BYW29EX-200
6230	9322 161 78682	DIO REC SB360L-7024 (GI00) B
6240	4822 130 42488	BYD33D
6250	4822 130 42606	BYD33J
6260	9340 559 53112	DIO REC BYW95C-24 (PHSE) B
6261	5322 130 34574	1N4004G

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7101	9322 164 16682	IC TY72011P2 (ONSE) L
7102▲	9322 149 04682	OPT CP TCET1102(G) (VISH) L
7125	9322 157 37687	FET POW STP3NC60FP (ST00) L
7201	4822 209 81397	TL431CLPST
7221	9322 163 53685	FET POW SM IRLML2502 (INR0) R
7231	9322 163 53685	FET POW SM IRLML2502 (INR0) R
7240	4822 130 40855	BC337
7241	4822 130 60373	BC856B
7249	4822 209 11079	LM79M05CT (NATIONAL)
7263	4822 130 60511	BC847B

VAL6011 DVDQ40-50 /0X1

Various

0001	9305 023 61101	VAL6011/01

Q50 /0X1 MECH

Various

0001	3139 247 53591	FRONT COMPLETE Q50
0005	3139 247 53991	FRONT AL Q50 EUR PNT PRT
0010	3139 247 53671	FRONT PLA Q50 US PNT PRT
0020	3139 247 53681	WINDOW Q50 US PNT PRT
0030	3139 247 53711	BUTTON L Q50 US PNT PRT
0035	3139 247 53721	BUTTON R Q50 US PNT PRT
0055	3139 247 54281	ASSY TRAY COVER DVD870
0070	3139 244 01461	LIGHT GUIDE Q50
0250	3139 247 54071	PLATE BACK Q50 EUR PNT PRT
0300	3139 247 53731	COVER TOP Q50 US PNT PRT
0350	3139 228 87672	PROD.ASSY RC19237001/01 PACKED
0360▲	2422 070 98133	MAINSCORD EUR 1M5 BK B
0360▲	4822 321 10713	MAINSCORD 300V EUR 1M5 BK B (/051 ONLY)
0365	3103 308 92610	CABLE AUDIO 2X2RCA MALE 1.5MTR
0366	4822 321 61579	VIDEO-CABLE
0372	3111 170 21992	SCART CABLE (L=1.10M) BMS
0375	3139 246 11211	IFU DVD Q50/05X
0375	3139 246 11181	IFU DVD Q50/00X
1101	3104 157 11200	CWAS FLEX DVD 16 130 32S
1102	3104 157 11190	CWAS FLEX DVD 22 130 32S
1108	3139 110 35821	FFC 08P/209/08P BD 1MMP FOLDED
1111	3104 157 11200	CWAS FLEX DVD 16 130 32S
1112	3104 157 11190	CWAS FLEX DVD 22 130 32S
1113	3104 157 11190	CWAS FLEX DVD 22 130 32S
1114	3139 110 35811	FFC 22P/180/22P AD 1MMP FOLDED
1117	3139 110 35831	FFC 08P/241/08P BD 1MMP FOLDED

AV PWB DVDQ50 /001 /021 /051

Various

1100	2422 025 16525	CON BM V 16P F 1.00 FFC 0.3 R
1101	4822 265 11154	52030-2210 (22P)
1301	4822 265 11154	52030-2210 (22P)
1400	2422 026 05088	CON BM CINCH H 6P F B
1401	2422 026 05189	CON BM CINCH H 4P F YEWHRD B
1402	2422 026 05188	CON BM MINI H 3P F TCS7927 B
1404	4822 267 31626	

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2100	4822 126 14305	100nF 10% 16V 0603
2101	4822 124 40184	1000µF 20% 10V
2102	4822 126 14305	100nF 10% 16V 0603

2103	4822 124 40207	100µF 20% 25V
2104	4822 124 40207	100µF 20% 25V
2105	4822 126 14305	100nF 10% 16V 0603
2106	4822 124 40207	100µF 20% 25V
2107	3198 017 44740	0603 10V 470nF COL
2109	4822 124 40207	100µF 20% 25V
2110	4822 126 14305	100nF 10% 16V 0603
2111	4822 124 40184	1000µF 20% 10V
2113	4822 126 13883	220pF 5% 50V
2114	4822 126 13883	220pF 5% 50V
2115	4822 126 13883	220pF 5% 50V
2116	4822 126 13883	220pF 5% 50V
2117	4822 124 23052	100µF 20% 16V
2118	4822 124 21732	10µF 20% 25V
2119	3198 017 44740	0603 10V 470nF COL
2120	4822 126 14305	100nF 10% 16V 0603
2121	4822 124 11947	10µF 20% 16V
2122	4822 122 33777	47pF 5% 63V
2123	4822 126 14305	100nF 10% 16V 0603
2124	4822 122 33777	47pF 5% 63V
2125	4822 126 13883	220pF 5% 50V
2126	4822 126 13883	220pF 5% 50V
2127	4822 126 13883	220pF 5% 50V
2130	4822 124 41584	100µF 20% 10V
2202	4822 124 80231	47µF 20% 16V
2204	4822 124 80231	47µF 20% 16V
2209	4822 124 11947	10µF 20% 16V
2210	4822 124 11947	10µF 20% 16V
2213	4822 124 11947	10µF 20% 16V
2214	4822 124 11947	10µF 20% 16V
2215	4822 126 14305	100nF 10% 16V 0603
2216	4822 126 14305	100nF 10% 16V 0603
2219	4822 126 14305	100nF 10% 16V 0603
2220	4822 126 14305	100nF 10% 16V 0603
2221	4822 126 14305	100nF 10% 16V 0603
2223	4822 126 14305	100nF 10% 16V 0603
2224	4822 122 31765	100pF 2% 63V
2225	4822 122 31765	100pF 2% 63V
2227	4822 122 31765	100pF 2% 63V
2228	4822 122 31765	100pF 2% 63V
2230	4822 126 14305	100nF 10% 16V 0603
2231	4822 126 14305	100nF 10% 16V 0603
2234	4822 126 14305	100nF 10% 16V 0603
2235	4822 126 14305	100nF 10% 16V 0603
2238	4822 124 40207	100µF 20% 25V
2239	4822 124 40207	100µF 20% 25V
2240	4822 124 40207	100µF 20% 25V
2242	4822 124 40207	100µF 20% 25V
2243	4822 126 13909	680pF 10% 50V
2245	4822 126 13909	680pF 10% 50V
2246	3198 016 31020	0603 25V 1nF
2247	3198 016 31020	0603 25V 1nF
2248	3198 016 31020	0603 25V 1nF
2249	3198 016 31020	0603 25V 1nF
2251	4822 122 33761	22pF 5% 50V
2306	4822 126 14305	100nF 10% 16V 0603
2307	4822 126 14305	100nF 10% 16V 0603
2308	4822 126 14305	100nF 10% 16V 0603
2309	3198 016 38210	0603 25V 820P COL
2310	4822 126 14241	0603 50V 330P COL R
2311	4822 124 22339	100UE 16V
2312	4822 126 14305	100nF 10% 16V 0603
2313	3198 016 38210	0603 25V 820P COL
2314	4822 126 14241	0603 50V 330P COL R
2316	4822 126 13909	680pF 10% 50V
2317	4822 126 14305	100nF 10% 16V 0603
2318	3198 016 38210	0603 25V 820P COL
2319	4822 126 14241	0603 50V 330P COL R
2320	4822 124 11947	10µF 20% 16V
2321	4822 124 22339	100UE 16V
2322	4822 124 11947	10µF 20% 16V
2323	3198 016 38210	0603 25V 820P COL
2324	4822 126 14241	0603 50V 330P COL R
2325	4822 124 11947	10µF 20% 16V
2327	4822 126 13909	680pF 10% 50V
2328	4822 126 14305	100nF 10% 16V 0603
2329	4822 126 14305	100nF 10% 16V 0603
2330	4822 124 41584	100µF 20% 10V
2331	4822 124 41584	100µF 20% 10V
2335	4822 126 14305	100nF 10% 16V 0603
2336	4822 126 14305	100nF 10% 16V 0603
2337	4822 126 14305	100nF 10% 16V 0603
2338	4822 126 14305	100nF 10% 16V 0603

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3100	4822 117 11152	4Ω7 5%
3101	4822 117 11152	4Ω7 5%
3105	4822 117 11152	4Ω7 5%
3106	4822 051 30759	75Ω 5% 0.062W
3108	4822 051 30759	75Ω 5% 0.062W
3109	4822 051 30223	22k 5% 0.062W
3110	4822 051 30222	2k2 5% 0.062W
3111	4822 117 12902	8k2 1% 0.063W 0603
3112	4822 051 30759	75Ω 5% 0.062W
3113	4822 051 30223	22k 5% 0.062W
3114	4822 051 30759	75Ω 5% 0.062W
3115	4822 051 30153	15k 5% 0.062W
3116	4822 051 30103	10k 5% 0.062W
3118	4822 117 11152	4Ω7 5%
3120	4822 051 30101	100Ω 5% 0.062W
3121	4822 051 30101	100Ω 5% 0.062W
3122	4822 051 30689	68Ω 5% 0.063W 0603 RC21 RST SM
3200	4822 051 30479	47Ω 5% 0.062W
3201	4822 051 30479	47Ω 5% 0.062W
3204	4822 117 12902	8k2 1% 0.063W 0603
3205	4822 117 12902	8k2 1% 0.063W 0603
3206	4822 051 30103	10k 5% 0.062W
3208	4822 051 30103	10k 5% 0.062W
3209	4822 051 30472	4k7 5% 0.062W
3210	4822 051 30472	4k7 5% 0.062W
3212	4822 051 30472	4k7 5% 0.062W
3213	4822 051 30472	4k7 5% 0.062W
3216	4822 051 30103	10k 5% 0.062W
3217	4822 117 12902	8k2 1% 0.063W 0603
3219	4822 051 30103	10k 5% 0.062W
3220	4822 051 30272	2k7 5% 0.062W
3221	4822 051 30272	2k7 5% 0.062W
3222	4822 051 30272	2k7 5% 0.062W
3223	4822 051 30471	470Ω 5% 0.062W
3224	4822 051 30221	220Ω 5% 0.062W
3225	4822 051 30471	470Ω 5% 0.062W
3226	4822 117 12902	8k2 1% 0.063W 0603
3227	4822 051 30471	470Ω 5% 0.062W
3228	4822 051 30221	220Ω 5% 0.062W
3229	4822 051 30471	470Ω 5% 0.062W
3230	4822 051 30272	2k7 5% 0.062W
3231	4822 051 30272	2k7 5% 0.062W
3232	4822 051 30272	2k7 5% 0.062W
3233	4822 051 30103	10k 5% 0.062W
3234	4822 051 30103	10k 5% 0.062W
3235	4822 051 30103	10k 5% 0.062W
3236	4822 051 30103	10k 5% 0.062W
3237	4822 051 30103	10k 5% 0.062W
3238	4822 051 30103	10k 5% 0.062W
3300	4822 117 12903	1k8 1% 0.063W 0603
3301	2322 704 62002	RST SM 0603 RC22H 2k PM1 R
3302	4822 051 30471	470Ω 5% 0.062W
3303	2322 704 62002	RST SM 0603 RC22H 2k PM1 R
3304	4822 051 30272	2k7 5% 0.062W
3308	4822 117 12903	1k8 1% 0.063W 0603
3309	2322 704 62002	RST SM 0603 RC22H 2k PM1 R
3311	2322 704 62002	RST SM 0603 RC22H 2k PM1 R
3314	4822 051 30103	10k 5% 0.062W
3315	4822 051 30103	10k 5% 0.062W
3317	4822 051 30222	2k2 5% 0.062W
3318	4822 117 12903	1k8 1% 0.063W 0603
3319	2322 704 62002	RST SM 0603 RC22H 2k PM1 R
3320	4822 051 30562	5k6 5% 0.063W 0603 RC21 RST SM
3321	4822 051 30471	470Ω 5% 0.062W
3322	2322 704 62002	RST SM 0603 RC22H 2k PM1 R
3323	4822 051 30272	2k7 5% 0.062W
3324	4822 117 12903	1k8 1% 0.063W 0603
3325	2322 704 62002	RST SM 0603 RC22H 2k PM1 R
3327	4822 051 30472	4k7 5% 0.062W
3328	2322 704 62002	RST SM 0603 RC22H 2k PM1 R
3331	4822 051 30103	10k 5% 0.062W
3334	4822 051 30472	4k7 5% 0.062W
3335	4822 051 30272	2k7 5% 0.062W

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5103	4822 157 70601	100µH (920927085A)

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6300	4822 130 83649	1SS355

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7101	4822 130 60511	BC847B
7102	4822 130 60511	BC847B
7103	4822 130 60511	BC847B
7200	4822 130 42804	BC817-25
7201	4822 130 42804	BC817-25
7202	4822 130 42804	BC817-25
7203	4822 130 42804	BC817-25
7204	4822 130 42804	BC817-25
7205	4822 130 42804	BC817-25
7300	4822 130 60511	BC847B
7302	4822 130 42804	BC817-25
7305	4822 130 42804	BC817-25
7400	9322 165 60668	IC SM LA7109 (TSAJ) R
7401	4822 209 16978	LF33CV
7402	4822 130 10845	GP1F32T
7502	9352 640 74118	IC SM UDA1334TS/NI (PHSE) R
7503	4822 209 30095	LM833D
7504	9352 640 74118	IC SM UDA1334TS/NI (PHSE) R
7505	4822 209 30095	LM833D
7600	9965 000 06290	AD1852 (DAC 24BIT/96KHZ)
7601	9322 067 00668	IC SM OP275GS (ANA0) R
7602	4822 209 30095	LM833D
7605	4822 209 30095	LM833D
7606	5322 209 14481	HEF4053BT

PROG SCAN PWB DVDQ50 /001 / 021 /051

Various

1002	2422 025 14349	CON BM H 22P F 1.00 FFC 0.3 R
1003	2422 026 05191	CON BM CINCH H 3P F RDBUGN B
1200	2422 025 08149	CON BM V 6P M 2.00 PH B
1201	4822 267 10637	B5B-PH-K (5P)

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2200	4822 124 40184	1000µF 20% 10V
2201	4822 126 14305	100nF 10% 16V 0603
2203	4822 124 81286	47µF 20% 16V
2204	4822 126 14305	100nF 10% 16V 0603
2206	4822 124 40184	1000µF 20% 10V
2207	4822 124 81286	47µF 20% 16V
2208	4822 126 14305	100nF 10% 16V 0603
2209	4822 126 14305	100nF 10% 16V 0603
2210	4822 124 40769	4.7µF 20% 100V
2211	4822 126 14305	100nF 10% 16V 0603
2212	4822 126 14305	100nF 10% 16V 0603
2213	4822 126 11669	27pF
2214	4822 126 13956	68pF 5% 63V CASE 0603
2216	5322 126 11578	1nF 10% 50V 0603
2217	4822 126 14305	100nF 10% 16V 0603
2220	4822 126 11669	27pF
2221	4822 126 13956	68pF 5% 63V CASE 0603
2223	5322 126 11578	1nF 10% 50V 0603
2224	4822 126 14305	100nF 10% 16V 0603
2225	4822 126 11669	27pF
2226	4822 126 13956	68pF 5% 63V CASE 0603
2229	4822 122 31765	100pF 2% 63V
2230	4822 122 31765	100pF 2% 63V
2231	4822 122 31765	100pF 2% 63V
2233	4822 126 14305	100nF 10% 16V 0603
2234	4822 126 14305	100nF 10% 16V 0603
2235	4822 126 14305	100nF 10% 16V 0603
2236	4822 126 14305	100nF 10% 16V 0603
2237	4822 126 14305	100nF 10% 16V 0603
2238	4822 126 14305	100nF 10% 16V 0603
2239	4822 126 14305	100nF 10% 16V 0603
2243	3198 017 44740	0603 10V 470nF COL
2244	4822 126 14305	100nF 10% 16V 0603
2245	4822 126 14305	100nF 10% 16V 0603

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3200	4822 051 30101	100Ω 5% 0.062W
3201	4822 051 30101	100Ω 5% 0.062W
3202	4822 051 30103	10k 5% 0.062W
3203	4822 051 30103	10k 5% 0.062W
3204	4822 051 30103	10k 5% 0.062W
3213	4822 117 11152	4Ω7 5%
3214	4822 051 20008	0Ω jumper . (0805)
3215	4822 051 30472	4k7 5% 0.062W
3229	4822 051 30759	75Ω 5% 0.062W
3230	4822 117 11817	1k2 1% 1/16W
3231	5322 117 13036	1k2 1% 0.063W 0603 RC22H
3232	5322 117 13036	1k2 1% 0.063W 0603 RC22H
3233	5322 117 13036	1k2 1% 0.063W 0603 RC22H

3234	5322 117 13036	1k2 1% 0.063W 0603 RC22H
3235	5322 117 13036	1k2 1% 0.063W 0603 RC22H
3236	5322 117 13036	1k2 1% 0.063W 0603 RC22H
3237	4822 051 30759	75Ω 5% 0.062W
3238	5322 117 13036	1k2 1% 0.063W 0603 RC22H
3239	5322 117 13036	1k2 1% 0.063W 0603 RC22H
3240	5322 117 13036	1k2 1% 0.063W 0603 RC22H
3241	5322 117 13036	1k2 1% 0.063W 0603 RC22H
3242	5322 117 13036	1k2 1% 0.063W 0603 RC22H
3243	5322 117 13036	1k2 1% 0.063W 0603 RC22H
3244	4822 117 11817	1k2 1% 1/16W
3246	4822 051 30759	75Ω 5% 0.062W
3247	5322 117 13036	1k2 1% 0.063W 0603 RC22H
3248	5322 117 13036	1k2 1% 0.063W 0603 RC22H
3249	5322 117 13036	1k2 1% 0.063W 0603 RC22H
3250	5322 117 13036	1k2 1% 0.063W 0603 RC22H
3251	5322 117 13036	1k2 1% 0.063W 0603 RC22H
3252	5322 117 13036	1k2 1% 0.063W 0603 RC22H
4xxx	4822 051 10008	0Ω 5% 0.25W (1206)
4xxx	4822 051 20008	0Ω 5% 0.25W (0805)

5202	4822 157 11828	22U 20% SM 0805
5203	4822 051 20008	0R00 JUMP. (0805)
5204	4822 157 71593	10μH 10%
5205	4822 157 11828	22U 20% SM 0805
5206	4822 051 20008	0R00 JUMP. (0805)
5207	4822 157 71593	10μH 10%
5208	4822 157 11828	22U 20% SM 0805
5209	4822 051 20008	0R00 JUMP. (0805)
5210	4822 157 71593	10μH 10%

7201	4822 209 17398	LD1117DT33
7203	9322 168 16671	IC SM ADV7190KST (ANA0) Y
7204	9322 167 49685	IC SM AD8061ART (ANA0) R
7205	9322 167 49685	IC SM AD8061ART (ANA0) R
7207	9322 167 49685	IC SM AD8061ART (ANA0) R